

# POPULAR PHOTOGRAPHY



**2015**  
POP AWARDS:  
**BEST GEAR  
OF THE YEAR**



HOW TO MAKE GREAT PICTURES



Tips for  
Nature's  
Complex  
Compositions

Your Most  
Beautiful  
Portrait  
Ever!

Tricks for  
Video in  
Photoshop

SECRETS OF A  
*Dance  
Master*

# VALLEY OF FIRE



© Michael Bandy

## OUR EXPERT INSTRUCTORS



### DAVID TEJADA

- Location photography
- Lighting techniques
- Compelling storytelling



### WOLFGANG KAEHLER

- Nature & wildlife photography
- Composition
- Expert critiquing

## JOIN US FOR A PHOTOGRAPHY WORKSHOP IN NEVADA

Roughly 58 miles northeast of the Las Vegas Strip lies the Valley of Fire, deep in the Mojave Desert. Named for the magnificent red sandstone formations that appear to be on fire when reflecting in the sun's rays, the Valley of Fire is an unparalleled destination for the Mentor Series and Nikon professional photographers David Tejada and Wolfgang Kaehler.

We'll take a short hike to our first Valley of Fire viewpoint of Balanced Rock. We continue to Three Cabins, made of the surrounding sandstone and then a stop to photograph the most whimsical rock formation, Elephant Rock, where the

sun dramatically peeks through the sides of his trunk. We'll conclude the day at Fire Wave as the sun drops over the orange stripes of the rocks, casting a curvy, purple shadow for you to photograph.

Day two will begin as the morning sun reflects contrasting colors on the one-mile hike that is White Domes Trail, which combines desert views, canyons and caves. As the sun falls, we'll end our day at Rainbow Vista, where your views of the desert spread out for miles and the catapulting, multicolored rays of the sun stretch out and touch the neighboring rocks.

**WORKSHOP FEE:** \$1,525 Includes snacks and water on the bus, transportation to each shooting location, park permit and entrance fees, in-field instruction, presentations, and digital review sessions.

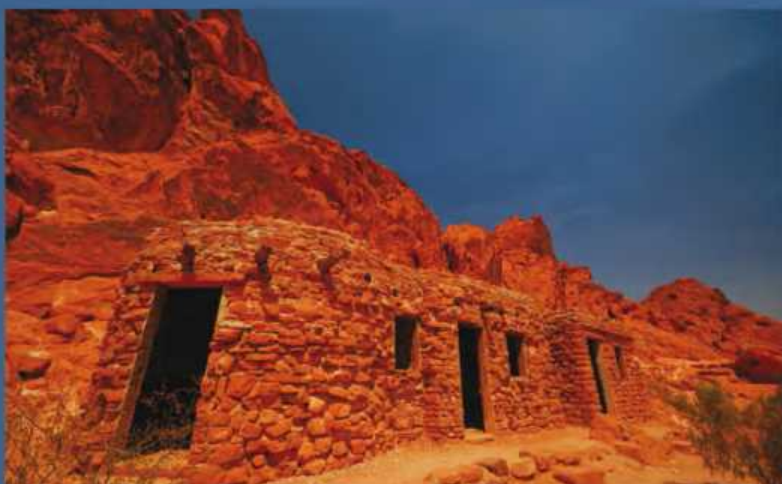


# IRE, NEVADA

## APRIL 15-17, 2016



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© Rich Greene



© Adam Hall



© Dave Lyons

### PRE-TREK EXCLUSIVE: LAS VEGAS

On Thursday, April 14, join Nikon pro David Tejada for an evening photo shoot for a small group of 6 in Las Vegas. Photograph scenic stops along the strip, the Bellagio fountains, mega hotels, neon signs and its dramatic architecture. End the night from a special vantage point above to capture panoramic views of this iconic location. The cost is \$450 which includes an evening photo experience, welcome cocktail and digital review session.

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**By Ian Shive**

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**By Theano Nikitas**

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## By the Editors



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α

SONY

THE POWER OF THE MOMENT.

Photographed by Sony Artisan  
Scott Robert Lim using the α7S  
f/1.8, 1/125, ISO 800, Lens: FE 55mm F1.8 ZA



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Not all features listed relate to each camera. Please check individual camera specifications for more details.

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PETER HURLEY

## And the Award Goes to...

I blame the calendar for the fact that as we were putting this issue of the magazine—featuring our annual POP Awards for Photography's Outstanding

Products—to bed I had to go running out of the office for an entirely different celebration of technological achievement in photography.

The Lucie Foundation, which produces the International Photography Awards and the Lucie Awards gala for photographers, publishers, and curators, hosted its 1st Annual Lucie Technical Awards, which gave prizes in 14 categories from Best Camera Bag to Best Full-Frame Camera. I was one of dozens of people (most of them photographers) on the advisory board and was tapped to present three of them: Best Software (Adobe Photoshop Lightroom 6), Best Instant Film & Camera (Lomography Lomo'Instant White Edition Camera), and Best Darkroom (Labyrinth Photographic Printing, London).

It's fascinating to me that an organization best known for promoting the art of photography decided this year to begin recognizing the technological innovation behind the craft. But it's not altogether surprising. Although viewers rarely think about the tools used to create and show images, photographers must (and many of us love to). This is especially true in times like ours, when technological advances open up new ways to capture, shape, share, and preserve our pictures.

In the POP Awards (page 60), our editors looked for just those advances—the ones most likely to make a difference in photography today—and chose the winners by consensus after a lot of discussion and debate. No nominee made it into the final list without our using the product, if not subjecting it to a full lab and field test (certainly the case with cameras and lenses). And although we tried to limit our picks, we still wound up with 27 winners and would have had more if we hadn't insisted on sticking only to those we all agreed were the absolute standouts. We commissioned our frequent contributor, photographer Brian Klutch, to photograph them all in a graphic layout against shiny backgrounds of silver and gold tones.

It wasn't easy to hone our POP Awards list. Have any favorites you think we left out? Let us know at [PopPhoto@bonniercorp.com](mailto:PopPhoto@bonniercorp.com).

*Miriam Leuchter*



**NEWSSTAND** Brian Klutch shot three POP Award winners we also tested this month: the Panasonic Lumix GX8, Tamron SP 35mm f/1.8 Di VC USD, and Zeiss Milvus 85mm f/1.4.

**SUBSCRIBER** For decades, renowned photographer Lois Greenfield has applied her own artistry to capturing dance. Learn her secrets on page 68.

# POPULAR PHOTOGRAPHY

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## HOLIDAY ERRAND

Every year Diane and husband Jordan Hollender, a conceptual and commercial New York City-based photography team, put their heads together to produce a holiday card. “We sit down for some serious brainstorming and don’t get up until we arrive at something that makes both of us laugh,” explains Jordan. The concept shown here is what got them laughing in 2011. To realize it, they found a toy car and enlisted the help of New Jersey friends who donated the talent—their young son. All of them piled into a real car and headed off to a nearby tree farm, where they explained the concept to the farmer, producing a laugh. “I’ve discovered that making someone laugh often gives us the license to ask for a favor,” says Jordan, “and about 90 minutes later we drove home with this picture—and the tree.”



# NEXT

**Holga Goes Digital** P.14

**New Leica System** P.16

**Camera Strap Roundup** P.18

THE HOTTEST NEW STUFF AND THE TECH TRENDS BEHIND IT

JUST OUT

## GIFT PICKS

### Friendly Flier ▶

**HEXO+**

Too busy having fun to pilot a drone? This smart six-rotor model takes off and lands autonomously and can even follow you around. Controllable using a smartphone or tablet via iOS and Android apps, it lets you attach a GoPro 4K camera to the removable gimbal and fly up to 40 mph. **\$1,349, street; hexoplus.com**

### Better View ▶

**CANON POWERSHOT G5 X**

This advanced compact has the same 1-inch 20MP CMOS sensor and 24–100mm (full-frame equivalent) zoom range as Canon's PowerShot G7 X, but unlike that camera, on which you must frame your shot in the LCD, the G5 X incorporates a 2.36MP OLED electronic viewfinder. Also new is a hot shoe, allowing for creative lighting control off-camera. **\$800, street; usa.canon.com**

EYE VIEW



### Portable Power ▶

**DYNALITE  
BAJA B6 600**

For location shooters, this battery-powered strobe packs a 600-watt-second punch. The new Baja will fire up to 400 times per charge with recycle speeds of 0.05–4.3 sec, and it includes an LED modeling light to ease your setup. **\$749, street; dynalite.com**

ON THE GO



### Prized Printer POLAROID SNAP

This cute instant camera shoots 10MP images and comes in four colors: red, blue, white, and black. It saves your photos to a MicroSD card and prints them in a snap using an ink-free technology called ZINK that dries instantly. **\$99, street; polaroid.com**



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## NEXT JUST OUT

### Instant ▶ Gratification

#### FUJIFILM INSTAX MINI 70

Perfect for self-portrait junkies looking for an analog fix, Fujifilm's latest Instax includes a selfie mode and a front-facing mirror to help you frame your shot. This tiny instant camera sports an improved viewfinder, high-contrast setting, and variable flash output to sweeten the deal. **\$140, street;** [fujifilm.com](http://fujifilm.com)

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FUN



### Retro Fun HOLGA DIGITAL

Everyone's favorite toy camera is back, this time with an 8MP sensor that stores images on an SD card. It still has the plastic body and a lens with two aperture selections (f/2.8 and f/8), along with two shutter speeds (bulb or 1/60 sec). **\$70, direct;** [holga.com](http://holga.com)



### RAW Deal ▶ ALIEN SKIN

A less expensive alternative to Adobe's Photoshop Lightroom, Alien Skin's new software for PC and Mac is pretty neat. Exposure X offers tons of film emulation and texture effects, and it incorporates tools for image browsing and RAW editing. Unlike the competition, you won't need a database file to get to work. **\$149, street;** [alienskin.com](http://alienskin.com)

### Take a Hike ▼ MANFROTTO ADVANCED TRAVEL BACKPACK

The Italian company renews this favorite model in three colors—blue, brown, and grey. This light bag can still hold a 13-inch laptop, DSLR camera body, two lenses, a flash, and various accessories; you can stow a tripod outside on the front or side. **\$119, street;** [manfrotto.us](http://manfrotto.us)



## F.Y.I.

**HASSELBLAD** and Mamiya Leaf both recently launched digital backs for their medium-format cameras. Both products house Sony's new 50MP 33x44mm sensor that boasts an ISO range of 100–6400. The handsome Hasselblad CFV-50c is made for the brand's signature 500-series of manual cameras. The Mamiya Leaf Credo 50 is compatible with a wide range of medium-format cameras and allows for Firewire and USB 3 tethered capture.

**TENBA** released an updated Messenger DNA bag, its first with silent Velcro technology. Event shooters are sure to appreciate the handy quiet material. Available in four colors (green, blue, copper, gray), the Messenger is clad in a water-resistant material that is durable yet professional-looking.



### Metal Upgrade LENSBABY COMPOSER PRO II WITH EDGE 50

This rugged update of Lensbaby's flagship product substitutes metal for many of the original plastic parts. It comes with the new Edge 50 optic, a flat-field f/3.2 lens that creates slices rather than the circles of sharpness you get with Lensbaby's Sweet 50. Available in all major camera mounts. **\$425, street;** [lensbaby.com](http://lensbaby.com)

## THE LOWDOWN

**A REPORT** released by the Associated Press says that in response to increasing incidents of drone-related safety issues, the Federal Aviation Administration will be creating a task force to decide which drones will require government registration. There will also be a system designed so that commercial drone operators can easily register their remote-controlled flying vehicles.



# MAKING MONEY

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# Photography

**Are you a keen photographer looking to make extra money from your skills? Maybe you like the idea of becoming the boss of your own photography business?** If this sounds like your perfect plan, then you need to understand exactly what you're letting yourself in for! I know because I've been a successful professional photographer for over 20 years.

**Making money from photography is not easy!** I'm not trying to sound sensationalist or be negative but unfortunately this is the truth. You could be an extremely talented photographer but if you don't learn and implement the correct key business skills then you could be heading for a very costly and time consuming episode of your life.

**Okay, let's not waste time - how can you make money from photography?** You need to know 5 essential marketing skills and discover the answers to 3 very important business questions.

Armed with this vital knowledge you dramatically increase your chance of success. The in-depth videos in this course will provide you with everything you need to understand and master these crucial skills.

**How much do I charge for my commercial photography?** I'm going to tell you exactly what I charge clients so you can gauge how much to charge for your photography. Professional photographers tend to be very secretive when it comes to this kind of information, however in this course I reveal everything.

**Which areas of photography can earn you the most money?** In this course we cover different routes into professional photography. Whether it's weddings, portraits, or commercial photography, the knowledge and workflow that I teach will ensure you meet your clients' expectations and continue to win work in the future.

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# LUXE & LARGE



## Leica goes full-frame mirrorless

**HOT ON** the heels of its updated medium-format S Typ 007, Leica has announced an entirely new interchangeable-lens system with a mirrorless camera body, the SL (\$7,450, street, body only), and a line of lenses to go with it. The SL houses a 24MP full-frame CMOS sensor and an electronic viewfinder. The German company is only the second manufacturer (after Sony) to make a full-frame mirrorless camera.

Seemingly a response to high-resolution and high-sensitivity ILCs, the SL boasts an ISO range of 50 to 50,000. It's not exactly compact—it takes design cues from

## STANDOUT SPECS

**SENSOR:** Full-Frame 24MP CMOS

**SENSITIVITY:** ISO 50–50,000

**SHUTTER SPEEDS:** 30 min–1/8000

**VIEWFINDER:** “EyeRes” 4.4 MP x0.8 60 fps

**LCD:** 2.95-inch touchscreen

**VIDEO:** 4K at 24 and 30 fps, 1080p Full HD up to 120 fps

DSLRs but retains the minimal yet sturdy features of Leica's M series. Although the camera is blocky, its deep right-hand grip and button configuration seem optimized for active use on long shoots. Machined out of two pieces of aluminum, the construction of the SL's weather-sealed body is engineered to stand up to abuse.

Perhaps the most notable feature, however, is the EVF that Leica calls the EyeRes. At 4.4MP, Leica claims it is the largest viewfinder of its type, sporting a 0.8X magnification and impressive field of view. As every EVF user knows, these things burn through batteries: The SL gets about 400 shots on a charge, extendable to

800 with an accessory battery grip.

The SL also records 4K video at 30 or 24 frames per second, and 1080p video at up to 120 fps. A button between the EVF and large screen on the back of the body is designed to switch effortlessly between still and video mode.

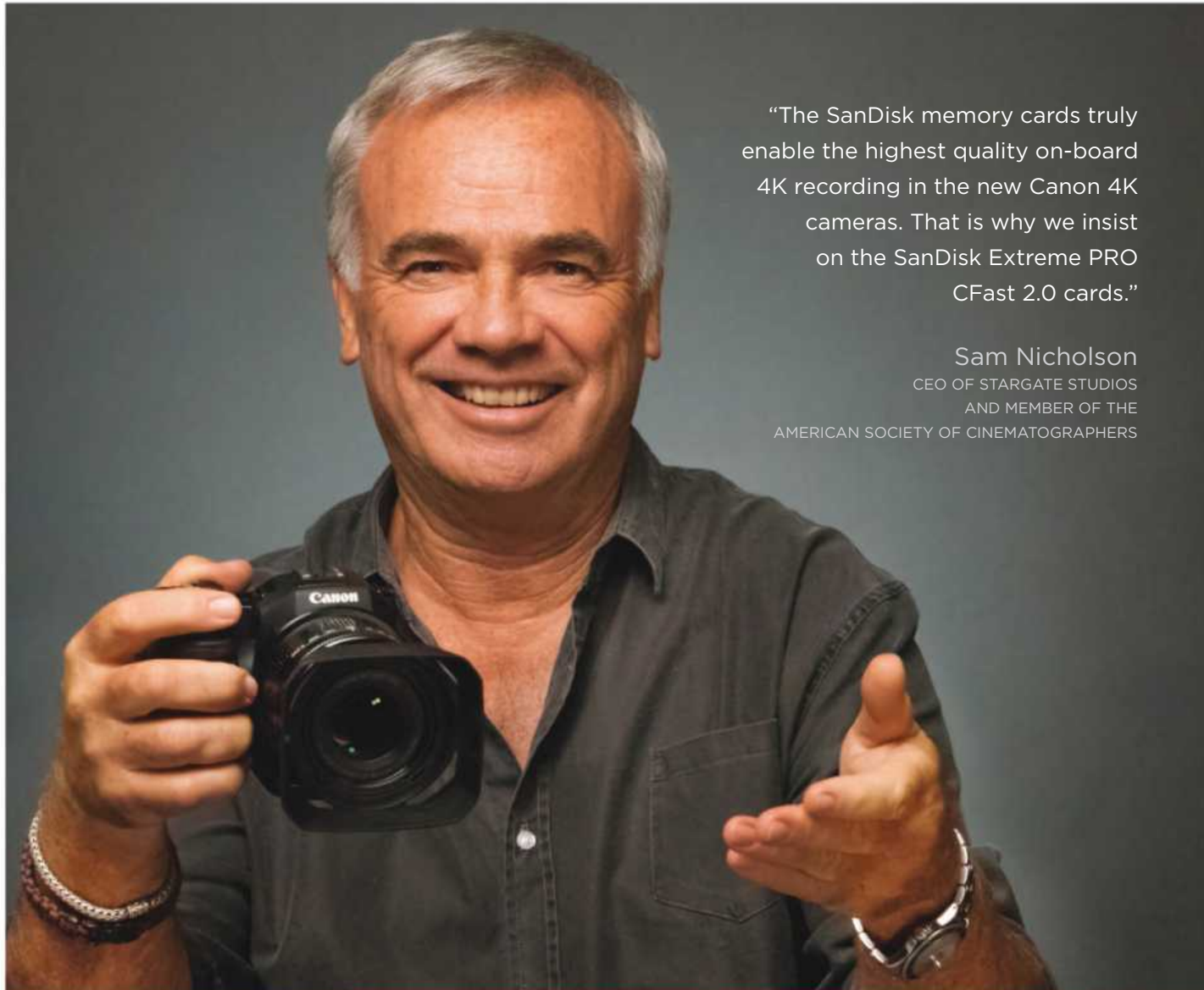
Leica is known for attention to detail. The buttons on the chassis are unlabeled and completely re-programmable, making it easy to customize the controls. Two SD card slots allow for image backup or extra shooting capacity.

You'll be able to mount M-series and R-series Leica lenses through existing adapters, though Leica plans to release official adapters in the future. The camera can even determine f-stop data for manual lenses without electrical contacts by combining information from internal and external light meters.

It won't surprise us if this camera is a hit. After all, Leica has been making “mirrorless” cameras for over 80 years.

—Adam Ryder





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Sam Nicholson

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# GET STRAPPY

**SURE, YOU** can use the strap that came with your camera—but why not make a style statement and get a strap that operates in a way that better suits your shooting style? Here are a few recent releases we like.

## 1 DSPCH Heavy Camera Sling Strap \$46

Made of woven poly fibers, this rugged strap comes in solid colors and camouflage. Use the Heavy size for DSLRs; the thinner Standard size is meant for smaller models. **HOT:** It comes with a pair of Flat Cord 3/4-inch Connectors you leave in the camera's lugs while snapping off the strap for tripod use. **NOT:** No padding, scratchy fabric, plastic hardware. [dsptch.com](http://dsptch.com)

## 2 Cotton Carrier Wanderer Side Holster \$49

This holster slides onto the belt of your pants or fits into other Cotton Carrier accessories. It's a revamp of the company's original slider, with a tether and hub that screws into your camera's tripod socket. **HOT:** The holster can fit on a backpack's waist strap. **NOT:** The strap is narrow and not well padded. [cottoncarrier.com](http://cottoncarrier.com)

**3 Luma Labs Cinch \$60** This model fastens to either the camera lugs or the tripod socket. You can also attach it to an Arca-Swiss-compatible plate (\$15) or a flexible Membrane Connector (also \$15) for your own tripod plate. **HOT:** The neckpiece is made from thick neoprene and laced with a silicone grid for better grip. **NOT:** The tripod plate requires an included Allen key to screw your camera on or off. [luma-labs.com](http://luma-labs.com)

**4 BosStrap Side Slide \$65** This model secures your camera with an extra strap that goes straight across your chest, harness-style. A sliding attachment lets you grab your camera quickly and an additional strap can hold binoculars or a second camera. **HOT:** The slider attachment fastens onto one lug on your camera, rather than the tripod socket. **NOT:** The straps are very long and might cause excess tail. [bosstrap.com](http://bosstrap.com)

## 5 Peak Design Slide Summit Edition \$65

This strap is made of heavy-duty seatbelt fabric with internal padding around the neck. You can attach one end to the included Arca-Swiss-compatible tripod plate and the other to a camera lug, or fasten both to the lugs for a traditional strap. **HOT:** Its Anchor attachments use colors to show you when you need to replace them. **NOT:** It's more than 1.5 inches wide, which petite photographers may find uncomfortable. [peakdesign.com](http://peakdesign.com)

**6 Langly Leather Sling \$75** Understated in black or natural leather, this classic has a slim profile and padded, suede-covered underside for comfort. The hardware is all metal. No bells and whistles here—it's just a sturdy, upscale camera strap. **HOT:** The padding feels like memory foam. **NOT:** You cannot adjust the length. [langly.com](http://langly.com)

**7 Fotostrap \$85** This strap sends 10% of sales proceeds to Fotolanthropy, a nonprofit run by Fotostrap's founder. Made of leather or canvas in a variety of patterns, it has a sliding leather neckpiece you can personalize with a monogram or logo. **HOT:** Spending big on a strap feels better with a charitable component. **NOT:** Pricey—the leather model here costs \$125, plus \$8 more for a custom logo. [fotostrap.com](http://fotostrap.com)



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**Sedona  
Sights** P.24

**Your  
Thoughts** P.25

**This Month's  
Top Shots** P.26



DESHAUN CRADDOCK (14)

## MY PROJECT

# IN A BLUR

**Movement brings out hidden color in familiar spots**

**WHEN** DeShaun Craddock began experimenting with his camera while shooting urban scenes in New York City, he stumbled upon a unique take on street photography. While many people create abstractions by focusing on minute details such as splotchy pavement or painted

walls, he turned to a technique more often used by landscape photographers: intentional camera movement, steadily panning over a scene while the shutter is open.

From this newfound shooting style, the *Abstract.NYC* series was born in 2012. Craddock uses

no filters and shoots handheld to achieve his desired effects. He says, "I was fascinated with the way that it is a contradiction to a typical photograph," erasing the documentation that is normally at the heart of the medium itself.

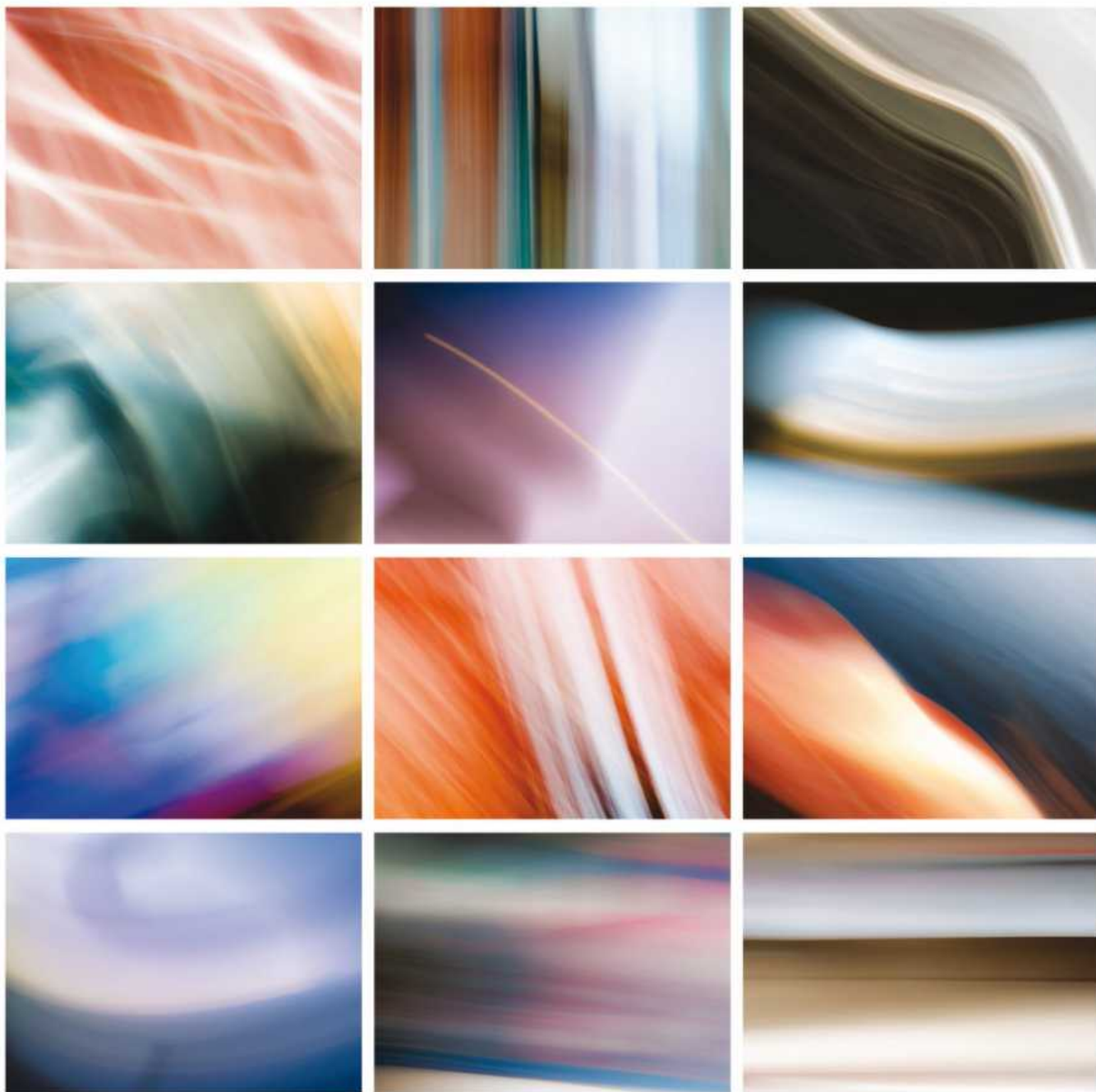
Craddock titles his photos



**DeShaun  
Craddock**

**Craddock has  
worked for  
*Gothamist*,  
*Huffington Post*,  
and *The Guardian*.**





**SMOOTH MOVES**  
Craddock edits in Adobe Photoshop Lightroom CC for exposure and contrast, but motion and blur is shot entirely in the camera by exposing each shot for 1/4 sec. The project began in 2012 and is set to wrap up at the end of this year. See more at [abstract.nyc](http://abstract.nyc).

simply by the neighborhood in which they were taken, such as “Hell’s Kitchen” or “Bushwick,” in order to preserve the ambiguity of his abstractions. Rather than planning locations, he leaves it up to serendipity and mood, noting, “I’ve had better success just walking on my own. I try to look for a particular color scheme or find areas with a good contrast.”

Anything and everything

can become an image: From a poster on the side of a building to a couple walking along the subway platform. “It’s the things I find in the environment,” Craddock says, “it doesn’t have to be something permanent.”

Yet his project is still rooted in a sense of place, and he does link each image title to the neighborhood location on Google Maps to allow for a more interactive experience of

the colors of New York.

This method of explorative shooting has led to some pleasant surprises for Craddock. The best of which is the discovery of beautiful, vibrant hues in locations usually assumed to be bland. “The financial district,” he says, “which I expected to be very muted, ended up being very colorful with beautiful purples and blues.” —**Sara Cravatts**

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MANNY LARIOZA (2)

**GRAND CANYON** Manny Larioza captured this fascinating view that shows the picturesque landscape and the crowds of tourists (in the upper right) that are hard to see at this image size.

# BIG VIEW

## A familiar landscape steals the show

**SEDONA, ARIZONA**, is a popular Mentor Series destination, and it's no surprise: Called by some "the Hollywood of Arizona," Sedona has provided those iconic red rock formations above the galloping cowboys in many a Western film. For Manny Larioza, an IT specialist from Palm Bay, Florida, those sandstone mountains weren't the only draw. For him, the nearby Grand Canyon proved transformative.

"I took the Grand Canyon shot [above] on the rim trail at Mather Point," says Larioza. "It had been raining all morning and fog covered most of the valley. Visibility to the canyon floor was iffy." The weather predictions called for a clearing, though, so the photographers waited and were rewarded for their patience with a parade of low-hanging clouds that floated magisterially down the valley before them. "It was a sight to behold," Larioza recalls.

The Sedona adventure taught him the benefits of waiting through sub-par weather. "In these conditions, the skies are always changing. Be patient, and keep a look out for interesting light. At one point, we were treated to a rainbow,"

he remembers. "If I had been traveling to the Grand Canyon on my own, I probably would have called that day a rain-out and sat in my hotel room, missing out on all the great shots I was ultimately able to get by joining the group."

Other advice Larioza offers to anyone who wants to shoot in the red-rock country surrounding Sedona:

• **Be prepared for crowds.** Most tourists congregate at the same spots. "As the days went on, I found myself taking less and less of my gear, because the venues were so crowded. Pack light and make sure you have a good wide-angle zoom," he advises.

• **Jump on the Pink Jeeps.** The Mentor Series crew toured with the famous Pink Jeeps of Sedona and enjoyed a memorable experience. "We were able to get up to the Mogollon Rim, where we took absolutely breathtaking shots of the Sedona Valley below," says Larioza.

—Peter Kolonia



## Manny Larioza

This network engineer for central Florida hospitals is planning trips to Costa Rica and Africa.



# WHAT MATTERS?

Obviously the Lightning Trigger was essential to Grant Ordelleide getting his image of a lightning strike ("Prize Pictures," November), but I somehow doubt that it could have been made only with the particular (rather expensive) tripod and head he happened to use. I don't understand why technical information about a photo regularly includes equipment, such as tripods, that do not in any way affect the image. Why not tell us what brand of shoes the photographer was wearing? Where does it end?

Alex Ragen  
Jerusalem, Israel

**THE REVIEW** of the new Canon EOS 5Ds (October) was interesting, but it left me with a lot of questions. What kind of lens does it take to make good use of 50.6MP? Will a typical user see a benefit with a good zoom, or do you need a prime lens at its best aperture to take full advantage of the resolution? How large does a print have to be to see a benefit from a 50.6MP sensor? If the largest print the typical photographer might ever make is poster-sized, 24x36 in., will a 50.6MP sensor make any noticeable improvement?

Dave Dankovic  
Amelia, OH

*If you print at 240dpi, the 5Ds's 8688x5792 pixels are only slightly more than the 8640x5760 of a 36x24-inch print. For lenses, manufacturers are adjusting for increased resolution—as in the new lenses from Tamron and Zeiss tested on pages 84 and 86.*

## POPULAR PHOTOGRAPHY

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# VISIONS OF NATURE

Three classic landscapes  
caught our eye this month

## 3rd Place \$100 Prize

LEWIS H. ABULAFIA, 69,  
RETIRED ORAL SURGEON, SAN DIEGO, CALIFORNIA

During a 3 a.m. trip to the Jökulsárlón Glacier Lagoon in Iceland, Lewis Abulafia was struck by the scene in front of him. “The raw beauty and the crystal-line nature of the ice was breathtaking,” he says. He watched as a small piece of iceberg calved off into the water and floated across the lagoon, washing up and settling on the shore. As the light rapidly changed, Abulafia snapped a shot of the captivating sight. **TECH INFO:** Canon EOS 5D Mark III with 16–35mm f/2.8L II Canon EF lens; 3.2 sec at f/16, ISO 100. Adjustments made in Adobe Photoshop Lightroom 4 and Photoshop CC.

### Photo Challenge: Complex Landscapes

You may have noticed that we skipped our Photo Challenge page this month. That's because our pinhole challenge did not produce a winner. **Make it up to us!** Read Ian Shive's “Picture Puzzles” (page 52) and show us your best landscape with a complex composition. You could earn \$100 and your story here. Rules: [PopPhoto.com/contests](http://PopPhoto.com/contests).





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\*All stores may not carry all listed manufacturers in stock.



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**National Camera**  
■ Exchange ■

[natcam.com](http://natcam.com)  
Minnesota





## 2nd Place \$200 Prize

**CYNTHIA  
STALEY, 58,  
PHOTOGRAPHIC  
SERVICES  
MANAGER,  
FAIRMONT, WEST  
VIRGINIA**

When Cynthia Staley set off to Valley Falls State Park near Fairmont, West Virginia, she had planned to photograph the double waterfalls on the Tygart River. But on her walk back to the car after shooting, she was met with a pleasant surprise when she noticed how beautiful the fog looked lifting over the trees near the river. "I am drawn to patterns in nature, so I liked the layers of shadows and mist through the trees," she says.

**TECH INFO:**  
**Nikon D750 with  
24–120mm f/4F  
ED VR AF-S Nikkor  
lens; 1/800 sec  
at f/4, ISO 500.  
Minor adjustments  
in Photoshop CC.**



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**Roberts**

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Indiana

**Samy's  
Camera**

[samys.com](http://samys.com)  
California

**DODD CAMERA**

[doddcamera.com](http://doddcamera.com)  
Illinois, Ohio

**National Camera**

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[natcam.com](http://natcam.com)  
Minnesota

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## 1st Place \$300 Prize

**YANG LU, 25, SUPPLY ANALYST,  
SACRAMENTO, CALIFORNIA**

Upon realizing that a shot devoid of tourists would be impossible, Yang Lu opted for a skyward angle of the Lower Antelope Canyon in Page, Arizona. "I looked up and saw the interesting curvature of the rocks," Lu says, "I love leading lines, so I purposely framed the picture." Once he had his composition in mind, he simply looked up, shot handheld, and took two exposures: one for the rocks and one for the sky.

He then blended the two layers in post. **TECH INFO:** Canon EOS 6D with 14mm f/2.8 IF ED UMC Rokinon lens; 1/8 sec at f/11, ISO 160. Layers were combined in Lightroom 4 and Photoshop CS6.

# WE ALL LEARN PHOTOGRAPHY IN OUR OWN WAY



Everybody has a particular style of learning that really resonates personally. It's whatever method gives you that light bulb moment. That split second we all look for where something you've been struggling with all of a sudden just makes sense.

There is no solution where one size fits all. Some of us do best by watching a video where someone shows us how to do something. Others love to pick up a good book and follow along with the steps inside. Then there are those who absorb things best in person, with the teacher right there in front of them.

When you're doing something that's both creative and technical, like photography and editing, it's important to figure out what brings the subject matter to life for you. Once you have that, you'll finally be on the path to real improvement. You'll see the kind of changes that will leave no doubt in your mind that you're getting better.

## The Advantages Of Each Learning Style

Every method has its pros and cons. What's important is which one has the biggest upside for you. It's also possible that one way will be better for you earlier on and another will be able to take you to the next level when you're ready. So, let's take a closer look at the options.

### Written Tutorials

Some people love written tutorials because you can quickly skim the article at first. This allows you to not only see if the topic is something you're interested in, but also if the technique is something you haven't learned yet. In Photography, in Photoshop, in Lightroom — there are so many different ways to get to an end

result. Taking a glance at an article and its step-by-step graphics can tell you right away whether it's for you or not.

Many students find this to be a big advantage over watching videos. With videos, you have to invest some time before you can really see what's coming and tell if it's for you or not. The advantages of written tutorials are speed and never having to rewind if you missed something.

### Online Training

Online training works great for photographers who just need to see somebody do something and then they can do it too. You show them the technique once or twice, they do it once or twice themselves, and then they've got it. With online training, you can go at your own pace, watching clips as many times as you need to get it right. Seeing is believing for photographers and designers, so it makes sense that so many learn best this way.

Another reason to choose online training is the sheer number of lessons to pick from. On the web, it's all searchable by names, titles, topics and instructors. This is also where specialized subscriptions make a huge difference. On the more mainstream video sites, you have to dig through channels and profiles full of irrelevant content. And when you finally find something worthwhile, it's often times just a teaser video for the DVD they want you to order.

### Live Training

As much for inspiration as it is for education, live training can keep you motivated unlike any other tactic here. It's like why we go to concerts. We know the songs on the record are going to

be more polished, but there's just something about seeing the music performed in person that resonates with us on another level. It's the same thing with live training. It moves you and it challenges you. It makes you smile and it makes you think in ways nothing else can.

## Choosing Between All These Possibilities

Sometimes, we like reading articles. We love the speed and repetition. Other times we want somebody to show us how to do it. And then there are the times we want to see things done in person so we can rediscover our passion all over again.

This is why KelbyOne has Photoshop User, a magazine full of articles on photography and design. It's packed with tutorials, reviews and news. KelbyOne members count on it 10 times a year. With over 100 pages in each edition, it's like getting a 1,000-page book sent to you annually.

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This is why KelbyOne does live seminars all over the country and why they founded the Photoshop World Conference and Expo. It's because we all learn differently. Deciding between all these possibilities isn't easy. But as you figure it out, it's important to have it all. Your choice can change over time and there's almost always more than one right answer. 📷





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## MANDALA MATRIX

**Copy and re-copy for a cool collage**

**WITH THE HELP** of almost any image processor, you can take an image of a single object, such as Kevin Twomey's great blue swallowtail butterfly, and easily transform it into a graphically supercharged mandala-like design. Just copy, flip, and defocus it *a lot*. Like mandalas, the symbols Buddhists use to help with meditation, Kevin Twomey's photographic designs typically have a strong central focal point and repeated patterns that seem to emanate from that point.

"I started by pulling a single butterfly into Adobe Photoshop, then multiplying and moving it around over a period of two days. By the end, I had a completely new and more elaborate image," says the San Francisco pro.

If you'd like to try this yourself, pick the right subject. It should have some inherent graphic interest such as repeated lines or symmetrical shapes. Flowers work.

Make sure you can easily extract it from the background once you get into the image editing stage. It should have crisp edges and be of a color that contrasts with the background.

—Peter Kolonia

### Step 1

**Gather your gear.** Almost any DSLR or ILC will work and, for a close-up subject like Twomey's, a 1:1 macro lens. He shot from a tripod with a lateral extension that allowed for shooting straight down, and lit with a ring light because its shadow-free output was perfect for his tiny subject.

### Step 2

**Build your set.** For close-up subjects, Twomey recommends suspending the object off the background, because it gives you more control of lighting and background focus. You can use a pane of glass, but Twomey pinned his butterfly above a black foam-core board, removing the pinheads in editing. Once everything is in place, you can photograph your object; bracket exposure to ensure you have the best possible image.

### Step 3

**Open the file in your image editor.** Almost any program that allows you to work with layers will do. Because these layers can mean large files and slow refresh speeds,

Twomey starts with a low-res copy of the file and uses it to play with subject sizing and placement before making his final version.

### Step 4

**Multiply the file.** Start by making multiple copies of your subject, putting each on its own appropriately named layer. Create a background canvas to your final image size and place grid lines that divide it into quadrants. Place the layers onto the background canvas, naming them to indicate the quadrant and any other qualities that apply to each.

### Final Step

**Design your mandala.** "During the design phase, work quickly and play," says Twomey. "Don't get bogged down with precisely placing each layer." When you arrive at a pattern you like, retrace your steps using the high-res original, adding more gridlines to help you align layers with precision.

**CUSTOM CUT** To finesse the lighting of the original butterfly shot, Twomey made his own neutral-density filter by cutting a Rosco two-stop ND acetate sheet to fit the circular front of his Profoto ring light.

## THE GEAR

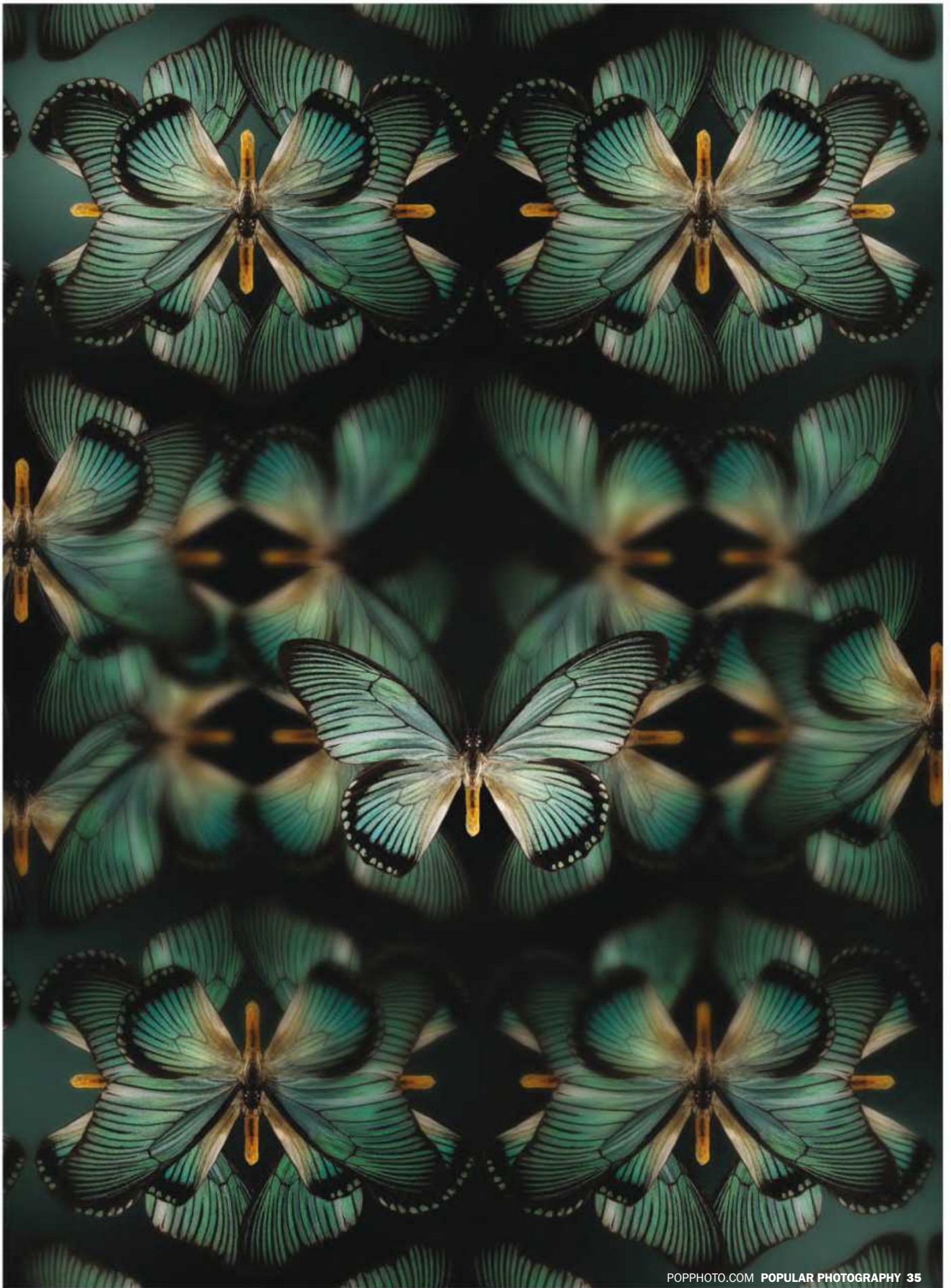
**1 HASSELBLAD 501 C** Twomey shot with this medium-format classic, but any DSLR and macro lens would have worked. **\$289 (used), street**

**2 PHASE ONE P45 BACK** The back Twomey used has been replaced by the IQ3, shown below. **\$35,990, street; \$795/day to rent**

**3 SPEEDOTRON 2403 CXLV POWER PACK** The photographer lit with a Profoto ring light which he had adapted to work with this pack. **\$1,880, street**









# KITTEN CROP

Go bold with white space for a pet portrait

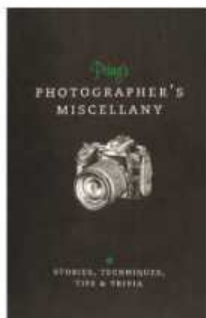
**WE LIKED THE** radical crop that New York City animal photographer Shaina Fishman applied to this photo of Sabrina, formerly a New Jersey shelter cat. “Sabrina had very expressive ears,” remembers Fishman, “and a cat’s ears will tell you a lot about its emotions. The ears turn back and forth independently and move around a lot, especially when they’re curious about something. Cropping out the mouth really brought the focus where I wanted it: on the ears and eyes.” Fishman offers the following additional quick tips for felines:

- **Shoot in a small space.** Cats like to feel contained and will curl up and relax. In larger spaces, they’re more likely to bolt.
- **Don’t rush.** “Avoid trying to get the shot too soon. Instead, let the cat get comfortable on set. Use treats or toys to get their attention. If you try to orchestrate a specific pose, you will fail. Cats are like supermodels—they do what they please,” she says.
- **Involve the pet’s owner.** Fishman begins most shoots by having the owner pet the cat, while the photographer fires the camera to acclimate the animal to the snapping shutter and popping flash. After a few minutes, the cat relaxes and the real photography begins. — **Peter Kolonia**

## BY THE BOOK

**PRING’S PHOTOGRAPHER’S MISCELLANY: STORIES, TECHNIQUES, TIPS & TRIVIA** by Roger Pring (Ilex, 2011)

First published in the U.K., this treasure chest of photographic lore is now available in the U.S. It can be binge-read in one sitting or slowly savored over weeks. One tidbit is the list of more than a dozen words used around the world to produce smiles: We say “cheese,” of course, but Bulgarian subjects say “zele” (cabbage) and Estonians say “hernesupp” (pea soup).



## TOOLBOX

### FLIP FLASH BRACKET

This type of flash bracket is for anyone who uses a standard shoe-mount flash to shoot portraits or events. They’re available in two styles; both keep the flash above the lens whether the camera is being used vertically or horizontally.

One bracket type, such as the Stroboframe Cameraflip (below), pivots the camera beneath a stationary flash; the other, such as the POP-Award-winning ProMedia Boomerang (page 60) pivots the flash around the camera. Both offer three advantages:

**Eliminating red-eye.** Moving the flash away from the lens prevents this unpleasant effect.

**Creating flattering light.** By lifting the flash high above the camera, you get a more pleasing angle than direct on-camera flash.

**Hiding shadows.** Camera-mounted flashes typically throw visible shadows behind subjects who are near walls. Flipping the flash lets you bury the shadow behind your subject for horizontal and vertical shots.







## Add professional monitoring and recording to any SDI and HDMI camera with Blackmagic Video Assist!

Blackmagic Video Assist is the ultimate on set production monitor and recorder for any SDI or HDMI camera! The large bright 5 inch monitor lets you see your framing and ensure you get absolutely perfect focus! The built in recorder uses common SD cards and records extremely high quality 10-bit 4:2:2 ProRes or DNxHD files that are much better quality than most cameras can record and are compatible with all video software. Now it's easy to add professional monitoring and recording to any camera!

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Blackmagic Video Assist has an extremely bright and sharp full HD 1920 x 1080 resolution display that's much bigger than the tiny built in display found on most cameras. Mount it directly to your camera or use a longer cable so it can be hand held by the cinematographer for composing shots. You can even monitor Ultra HD sources!

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### Fast Touchscreen Controls

The built in monitor features a touchscreen to make setting up and using Blackmagic Video Assist incredibly easy! Use simple tap and swipe gestures to make adjustments, display camera information and evaluate audio levels and exposure. The elegant heads up display is semi transparent so you can still see your video at all times!

### Broadcast Quality Connections

Blackmagic Video Assist includes HDMI and 6G-SDI inputs so you can record from virtually any camera or DSLR. The HDMI and SDI video outputs means you get the ultimate hand held media player for viewing shots on set or presenting to clients. You also get a headphone jack, 12V power and two LP-E6 battery slots for non stop power!

### Blackmagic Video Assist

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**BYODO-IN TEMPLE 47-200 KAHEKILI HIGHWAY** This non-practicing Buddhist temple is a replica of a famous temple in Uji (Kyoto), Japan. You will find beautifully landscaped grounds with roaming peacocks, black swans, koi ponds, and a nine-foot-tall hand-carved golden Buddha. **INFO:** (808) 239-8811; byodo-in.com

**IOLANI PALACE 364 S KING STREET** A splendidly restored royal palace that is a heady reminder of Hawaii's days as a monarchy. Described as "a marvel of opulence, innovation and political intrigue," it includes a Grand Hall, Throne Room, State Dining Room and two Royal Suites. No flash, tripods, monopods, or selfie sticks. **INFO:** (808) 522-0832; iolanipalace.org

**KUALOA RANCH 49-560 KAMEHAMEHA HIGHWAY, KANEHOE** You probably won't see dinosaurs, but you can visit the 4,000 acre ranch where they filmed much of *Jurassic Park* and *Godzilla*. Family owned for six generations, this working cattle ranch about 45 minutes from Honolulu offers landscape lovers virgin beaches, dense rain forests, and mountain cliffs. There's a variety of tour options. **INFO:** (800) 231-7321; kualoa.com

**MAKAPU'U POINT LIGHTHOUSE TRAIL KALANIANA'OLE HIGHWAY; HWY 72** Located in the Kaiwi State Scenic Shoreline at the southernmost tip of Oahu, this two-mile paved, but steep, trail provides stellar views of Oahu's southeastern coastline.

# BEST BEACH

## Capture a bit of paradise in Honolulu

"**THERE IS NO** place on Earth like Hawaii," says photographer Marco Garcia, who moved to Honolulu "temporarily" in 2003 and never left. "I'm surrounded by mountains, live volcanoes, monster waves crashing on the shore, hula dancers swaying like palm trees—it's tough not finding a picture wherever you point your camera."

Famous Waikiki Beach, Garcia says, runs true to expectations: Crowds of sunburned midwesterners, trendy Japanese visitors, and clusters of tanned surfers catching the

gentle waves. "Waikiki is a visually unique place where a camera will never get bored," he says. For a less-touristy alternative, he suggests visiting nearby Magic Island between Waikiki and downtown Honolulu. "It's a part of Ala Moana Beach Park and on one side of the park you can see breathtaking views of the sun dipping into the Pacific Ocean while the other offers spectacular views of Diamond Head, the towers of Waikiki, and the Kahanamoku Lagoon, where outrigger canoes and sailboats cruise in and out."

Honolulu is a colorful city that's rich in history, culture, and natural beauty, says Garcia. Chinatown is

**VIEW FROM A ROOM** Marco Garcia shot this iconic view of Waikiki from an undisclosed hotel balcony with a Canon EOS-1D X and 24-70mm f/2.8L II Canon EF USM lens with a polarizing filter. Exposure was 1/400 sec at f/5.6 and +0.7 compensation at ISO 200.

one of his favorite downtown haunts. "The markets are filled with tropical fruits and flowers along with the occasional pig's head," he says. "It is one of the oldest Chinatowns in the United States, and its sordid history of World War II brothels, gambling, and opium dens adds to its visual character."

December, says Garcia, is a great month to catch massive winter waves at Waimea Bay on the North Shore of the island (45 minutes from downtown on the Kamehameha Highway). Waimea is the site of the infamous Eddie surf contest, held in winter only when waves reach a minimum of 30 feet high. The window of opportunity starts on December 1. "It is a thrilling event to photograph," says Garcia. Bring your longest telephoto lens. —Jeff Wignall



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AFTER

# MOVING PICTURES

How to quickly edit video in Photoshop

**IF YOU HAVE** Adobe Photoshop CS6 or later, you have a video editor at your disposal. So whether you're just starting out with motion or don't want to spend money on dedicated video software, give it a try. You can use it to clean up a single video clip or even to create a short movie.

Editing video can be intimidating at first, but since Photoshop lets you edit clips using tools you know, such as adjustment layers, filters, and more, learning is easier. As you

work, you'll get familiar with timelines and audio, which will make it easier to transition to dedicated video editing software if and when you want to step up your skills.

We kept this workshop fairly simple, using a single clip. But once you're comfortable with Photoshop's video workflow, it's easy to move into more complex editing within the application. For this tutorial we used Photoshop CC 2015 and a clip captured by associate online editor Jeanette D. Moses.

—*Theano Nikitas*



BEFORE

## SAMPLE STILLS

Photoshop allows you to use many of its image-editing tools on video. These stills are from a clip that was straightened and made more contrasty. See the before and after clips at [PopPhoto.com/Photoshopvideo](http://PopPhoto.com/Photoshopvideo).

## QUICK TIP ORDER OF OPERATIONS

If you plan to adjust audio levels or video speed, be sure to do so prior to straightening, cropping, or using editable smart object filters. Once the video has been transformed into a smart object (the video timeline changes to purple to indicate this), you no longer have the option to change some of the clip's parameters.



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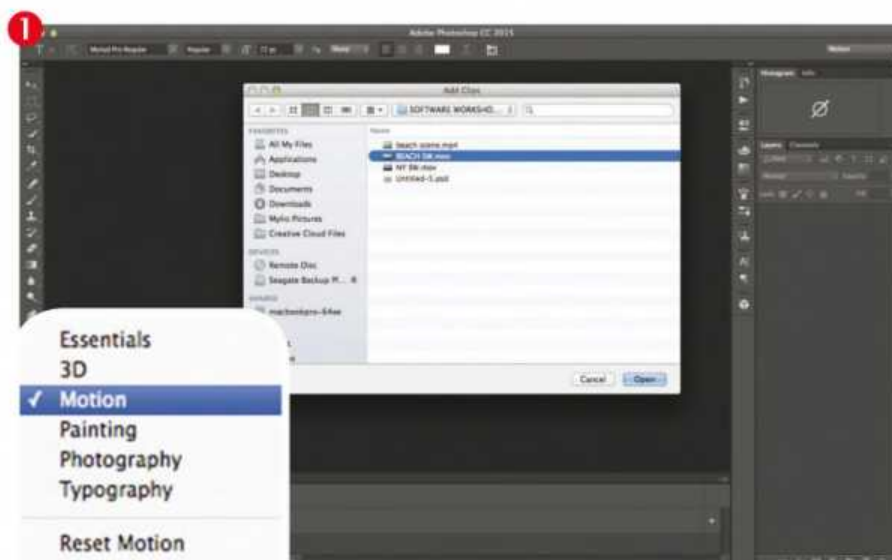
Open Photoshop. **In the upper right-hand corner of the screen, click on the workspace menu and choose Motion (CS6 users go to Window > Timeline).** This will open the timeline at the bottom of the screen. Click the Add Media icon (it's the filmstrip icon to the left of the timeline) to add video clips. I'm working only on a single one here, but if you open multiple clips, they appear on the timeline (and in the layers panel) in the order you open them.

# Step 2

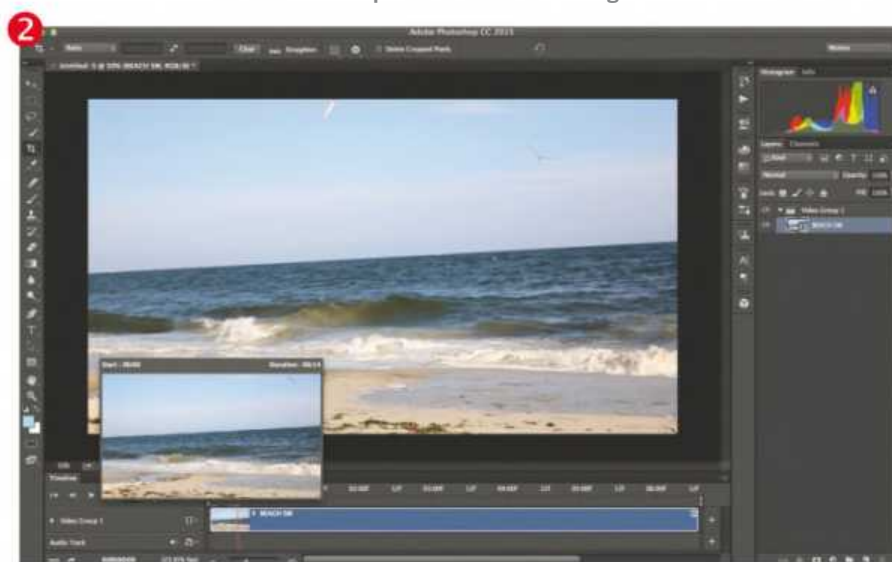
Trim the video if necessary. **To trim the start of the clip, move the playhead (the red vertical line with the blue pointer on top) to the place that you want the clip to start (this is called the in point).** Then place the cursor over the beginning of the clip. The cursor turns into a trim tool, which looks like a left bracket with two arrows. Use it to drag the beginning edge of the clip right to the playhead. The timeline will immediately shift left. Repeat on the right edge of the clip to trim the end of the video. Because this clip is so short, I trimmed only a fraction of a second from the beginning. Move the playhead back to the start of the video.

# Step 3

I like the sound of the ocean in the video, but it's pretty loud. **To decrease the volume and fade it out at the end, right-click on the video clip and click on the musical note.** I adjusted the volume to 40% and chose a 1.5-sec fade out. If you'd rather add your own audio track, click the Mute Audio checkbox at the bottom. Back in your timeline, click the musical note on the audio track, which sits below Video, and choose Add Audio.



**FIND YOUR TOOLS** Switch to the Motion workspace to see the video editing interface.





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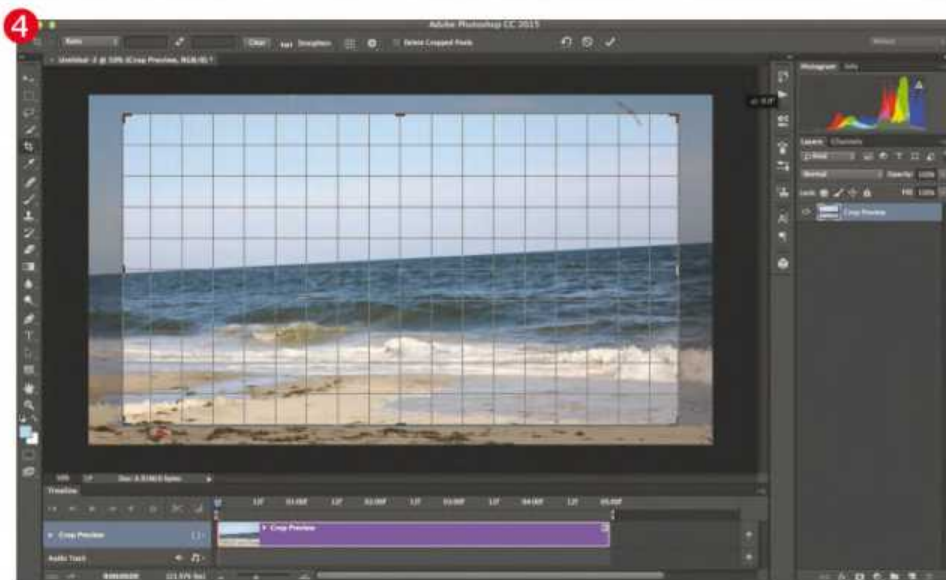
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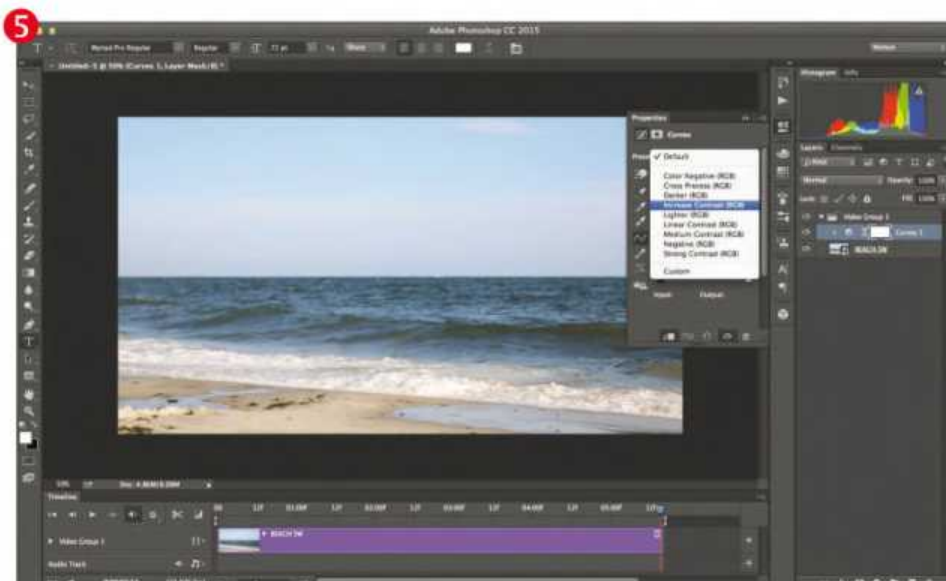
# Step 4

To straighten the lopsided footage and/or crop the video, click on the crop tool [C] in the toolbar. **Place the cursor in the upper right corner just outside of the crop marks until it turns into a curved, double-arrow line.** Use the grid lines to ensure the horizon is level. Click the checkmark when completed—you'll get a warning that doing so will require converting to a smart object layer. This is necessary. Click Convert to continue. The timeline turns purple to indicate that you can no longer adjust audio volume or video speed.



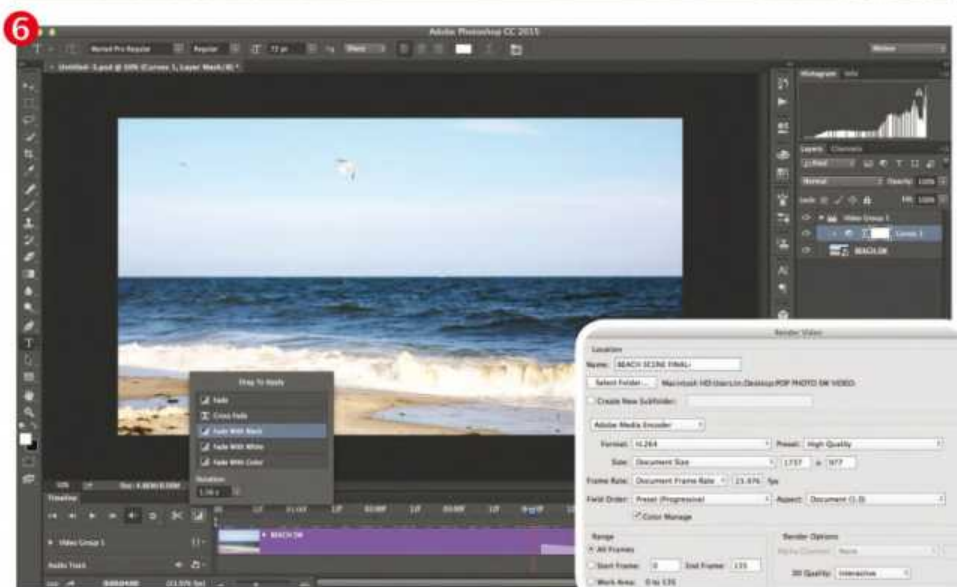
# Step 5

You can use almost all of Photoshop's adjustment tools on the video. **To make the scene more dramatic, go to Layer > New Adjustment Layer > Curves.** Select the Increase Contrast preset as I did here, or make your own adjustment to fit your aesthetic.



# Final Step

I added a 1.56-sec fade with black to the end of the clip to complement the audio fade. **Click the transition icon (it's the grey/black square at the upper left of the timeline, next to the scissors) to set the duration of your transition.** Then drag your choice of fades to the end of the video timeline. You can pick cross fade, fade with black, fade with white, or fade with color. When you're finished, go to File > Export > Render video. Name the clip, choose a destination and format, and adjust other options depending on your intended use. Finally, click Render to finish.





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# FACE TIME

## Try these tricks for better beauty

**A BEAUTY** light setup such as the one Andreas Kuehn used for this model typically aims the main light to fill in any shadows that might be cast by bumps or other imperfections in a subject's complexion. The result will be more perfect-seeming skin. That's not the only reason this fashion and beauty pro selected it, though. He wanted its simplicity.

"This picture was one of hundreds I made in an intense three-day beauty shoot," recalls the photographer (andreaskuehn.com) who lives on Cape Cod, where he can service both the Boston and New York City media markets. "On the first day, we concentrated on the makeup and face; on the second, our subjects were body and skin; and the third day, the images were all about hair." The simple beauty setup allowed his team to capture many different shots with very little changes to the lighting between each.

The trick to beauty light, Kuehn says, is getting your main light as close as possible to the model. "That's your greatest challenge, and the ultimate key for success. You're very close to the subject, with the light right above camera. With a tight crop like this one, very small movements of the light or subject can make a big

**WATCH THE NOSE** This lighting setup is often called **butterfly lighting** for the shape of the nose shadow it casts: similar to the shape of a butterfly with wide-open wings.

## TOOL TIPS

### 1 PROFOTO ACUTE D4 STROBE HEAD

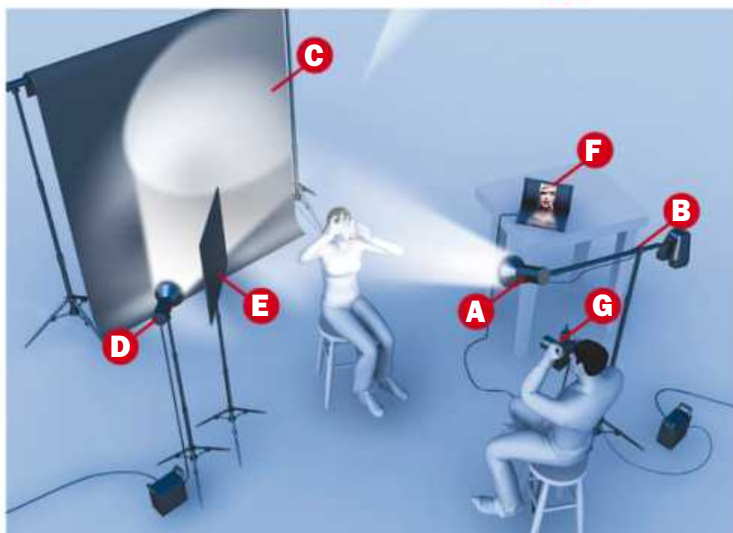
Unlike most headshots that are lit with softboxes or beauty dishes, the photographer put a grid attachment on his main light, making it even harder. "Her skin was so perfect, I saw no reason not to," says Kuehn. **\$1,101, street**

### 2 MATTHEWS 30X36-INCH BLACK FLAG

Black flags, sometimes called gobos, help photographers direct light away from a subject or add black shadows to it. **\$65, direct**

### 3 MATTHEWS MINI BOOM

By suspending his main light from this Mini Boom, Kuehn was able to place the light above his camera without a lightstand blocking his view. **\$200, direct**



KRIS HOLLAND/MAFIC STUDIOS

For this beauty portrait of a model whose skin Andreas Kuehn described as "flawless enough not to require a soft light," he started by placing his naked Profoto mainlight and reflector (A) on a boom (B) that let him position the light immediately above the camera. Behind the model, he suspended a seamless background (C) that he lit with a second Profoto Acute strobe head (D). To prevent its light from spilling over onto his subject he placed a black flag (E) between the model and light, adding a grid attachment to the strobe head also to constrain its output. He shot tethered to a nearby laptop (F), and used a Canon EOS 5D Mark II and 100mm f/2.8L IS USM Canon EF macro lens (G), exposing for 1/125 sec at f/22, ISO 50. "Shooting tethered to a computer can sometimes be disruptive," says Kuehn. "You're constantly tempted to look at the screen, which can break up the rhythm of the shoot. I can't imagine producing a beauty shot like this without one, though."

difference in the way the picture looks. Shooting tethered to a computer is also helpful. It shows you what is working, making your job much easier," says Kuehn.

### KUEHN'S OTHER TIPS FOR GREAT BEAUTY SHOTS

- **Aim your mainlight carefully.** Position your mainlight to shine directly into your subject's face to minimize nose shadows that can introduce complications.
- **Tightly crop.** "It's more dramatic," says Kuehn. "If you pull the camera back, the image loses drama and impact."
- **Use a macro lens.** Kuehn likes shooting beauty with a 1:1 macro lens because it gives him the option of focusing on just an eye to show off its shape or perfect makeup.

### • Direct the model with precision.

"When working with models, ask them to make only very slight movements and to hold each pose until you can get three or four shots. Afterwards they should make another slight movement. With full lengths, subjects can move as much as they like, but with this type of tight headshot, movements, whether it's the model, your lights, or your camera angle, should be in millimeters, not inches," says Kuehn. "Subject movements should be almost robotic."

• **Get help.** Beauty work, like food photography, is a highly specialized endeavor and few photographers master all its components. For this shoot, Kuehn employed a hairstylist, makeup artist and an assistant/digital tech person.

—Peter Kolonia



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# PICTURE PUZZLES

Nature doesn't always divide easily into a foreground, middle ground, and background. How do you resolve a beautiful but complex scene? Landscape master Ian Shive shares his tricks.

*Text and photos by Ian Shive*

## **COMPLEX COMPOSITIONS**

have many interconnected parts which work together to lead the viewer's eye through the frame. Like an elaborate Hieronymus Bosch painting, the longer you stare at them, the more you notice.

To understand complex composition, first understand its opposite: simple landscape composition. A simple composition usually has a clear foreground ele-

ment, a middle ground element, and something in the distance. Complex landscape photos, on the other hand, require the photographer to put many different elements into a frame and get them to harmonize. To help you approach these kinds of complicated pictures, I'll show you seven scenes that presented unique problems and tell you how I solved them.

## **UNEVEN WILDFLOWERS**

The foreground element was distracting when sharp, but worked blurred. Shot with a Canon EOS 5D Mark II and 70-200mm f/2.8L Canon EF lens set to 140mm; 1/400 sec at f/8, ISO 100.



## AN UNCOOPERATIVE FOREGROUND

**Denali National Park, Alaska (previous page)**

**THE PUZZLE:** These purple fireweed wildflowers were an obvious foreground element, but they were unevenly spaced. No matter how I worked the scene, there were big gaps between the flowers that allowed a not-so-beautiful rock pile and barren dirt to show through. They just wouldn't work as a sharp, in-focus foreground element.

**THE SOLUTION:** I had to think of a clever way to include the flowers while also including the beautiful mountain landscape that was before me. Rather than shooting with a wide-angle lens, which is what I tried at first, I decided to compress the scene using a 70–200mm lens set to 140mm and a somewhat shallow depth of field at f/8. This allowed me to crop out the visually unappealing rock pile and focus solely on the blurred flowers,



the mountains, and the other layers in the composition. The flowers provide a splash of color in what would have otherwise been a rather drab scene, but they don't draw your eye away from the layers of hillsides and mountains in the background.

**ABOVE: AERIAL**  
Shot from a plane with a Canon EOS 5D Mark II and 24–70mm f/2.8L Canon EF lens; 1/640 sec at f/6.3, ISO 640.

## SHIFTING SHADOWS

**Death Valley National Park, California (top)**

**THE PUZZLE:** Sand dunes are beautiful, but I wanted to avoid falling into the typical trap of photographing them using a





strong foreground with wide-angle lens. In this image of a hiker climbing the Mesquite Flat Sand Dunes I attempted to accentuate the shape and lines of the dunes. That became extra challenging in the rapidly changing light. I had to think fast.

**THE SOLUTION:** I switched to my 70–200mm f/2.8 lens and mounted it on a tripod for maximum stability. I pulled the focal length all the way out to 200mm and, looking through the viewfinder, I began working the scene, searching for ideal compositions. By using this telephoto lens, I was able to compress the scene, which made the dunes closer to me look about the same distance as the dunes farther away. I also wanted to underexpose the scene to keep the lines clean and ensure that the shadowed areas had absolutely no detail; this also gave me a sharper shutter speed (1/2000 sec) when

**FACING PAGE, TOP: DUNE LIGHT** Shive went long to add interest to this shot, made with a Canon EOS 5D Mark III and 70–200mm f/2.8L Canon EF lens 1/2000 sec at f/8, ISO 400.

**ABOVE: STEPPING STONES** This composition works because the stones hardly overlap. Shot using a Canon EOS 5D Mark II and 16–35mm f/2.8L Canon EF lens set to 20mm. Exposure was 4 sec at f/22, ISO 100.

combined with a slight bump up to ISO 400. The ultimate goal was to use the last bit of light to paint the edges of the dunes so that there would be a series of crisscrossing lines running through the picture, forcing the eye to wander and ultimately ending up on a very fortunately timed hiker working his way towards the summit.

## ARRANGEMENT ISSUES

**Rocky Mountain National Park, Colorado (above)**

**THE PUZZLE:** I loved all these rocks in the foreground, but if allowed to overlap, they would interrupt the flow of the viewer's eye.

**THE SOLUTION:** When setting up, I shifted the camera in extremely small increments to ensure that the rocks led your eye through the scene. Sure, I could have set up elsewhere and captured the reflection without the rocks in the foreground, but it is more interesting to break

up the reflection and force the eye to wander around, almost as if it is navigating the scene stone by stone. To ensure maximum depth of field so that all the elements I've worked to incorporate can be discernible, I selected a focal length of 16mm and chose f/22.

## CLICHÉ BUSTER

**Moosehead Lake, Maine (opposite page, bottom)**

**THE PUZZLE:** Large, panoramic landscapes were easy to capture during the peak fall foliage season in one of New England's most picturesque locations. But I wanted to make a picture that would surprise and let you appreciate the incredible color gradients of the season.

**THE SOLUTION:** When shooting from a fixed-wing airplane, I typically use either a medium focal length zoom, such as a 24–70mm, or a telephoto 70–200mm. Since the plane is moving, I prefer



fast lenses; when shooting with telephoto, image stabilization is helpful. I also immediately bump my ISO from my normal landscape default, 100, for a little more speed, either 400 or even 800 depending how fast we are traveling. For this composition I used my 24–70mm f/2.8. And with each close of the curtain I was looking to eliminate intrusive aspects of the scene, such as a rogue branch or corner of the lake that would be distracting. In this particular case my complex composition takes you a few seconds to figure out what you are looking at and then encourages the eye to linger on the finer details, such as the color shifts in

the foliage. The image relies on having a few identifiable elements rather than many. Once again there is no clear subject or adherence to the rule of thirds; it is more about abstract shapes and lines working harmoniously together.

## MOVING SUBJECTS

### Channel Islands National Park, California (above)

**THE PUZZLE:** In this underwater image of sea lions, I knew I'd be able to capture at close range the entire colony of these pinnipeds. But they zoomed around me and stayed relatively bunched together. It was impossible to compose while shooting.

**SEA LIONS**  
Some puzzles, like this one, should be solved in post. Shot using a Canon EOS 5D Mark II and 8–15mm f/4 Canon EF lens set to 14mm; 1/250 sec at f/11, ISO 400.

**THE SOLUTION:** I opted to go ultra wide, using a fisheye, to give a globular feel to the image, leaving layer upon layer within the scene to unfold like an onion. With such fast moving subjects, the composition cannot be decided in the moment, but rather in the editing room. To capture this shot, I used the 8–15mm f/4 Canon EF fisheye lens set at 14mm, ISO 400 (to ensure a faster shutter speed) and f/11 at 1/250 sec (fast enough to freeze the action, provide a little depth, and support a touch of fill light with the TTL strobe). When reviewing my final frames, I looked for those that offered a feeling of the chaos that I expe-



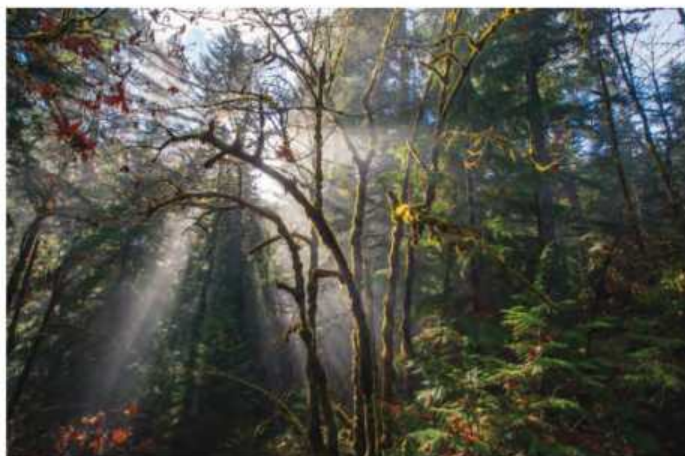


rienced but also forced the eye to wander through to each of these creatures. I was careful to find a frame that had as few sea lions overlapping each other as possible, allowing the viewer to clearly identify each one.

## FLAT LIGHT

**Crater Lake National Park, Oregon (top right)**

**THE PUZZLE:** Besides the extreme cold this winter's day, the light was disappointingly flat. I didn't have the great colorful sunset I was hoping for, so I needed to find a way to convey the chill of the winter and embrace the light I had.



**ABOVE TOP: COOL LIGHT**  
No sunset, no problem. Captured with a Canon EOS 5D Mark II and 16–35mm f/2.8L II Canon EF lens set to 27mm; 1.6 sec at f/16, ISO 100.

**ABOVE: IN THE WOODS**  
Shive caught the light using a Canon EOS 5D Mark II and 16–35mm f/2.8L II Canon EF lens set to 16mm; 1/250 sec at f/7.1, ISO 400.

**THE SOLUTION:** I decided to use the monochrome color that comes in the moments after sunset to create a uniform blue look that would to visualize the cold. What makes this image work is the variety of focal points to draw your eye in—it isn't one obvious focus but rather several areas. The touch of color that came out in the mountains on the horizon gave me a distant focal point. The man in a red jacket on the ridge gave me a second focal point, and the trees that frame the lower half of the image are the third. This is a relatively busy image that doesn't have clear lines and lacks any strong rule of thirds compositional elements. But by providing various focal points in the frame the picture comes together, especially when placed against the palette of blue.

## MESSY SCENE

**Coos Bay, Oregon (near left)**

**THE PUZZLE:** This landscape was not going to be conducive to a clean composition: it contained fallen trees, autumn leaves scattered on the forest floor, and no clear dramatic foreground element. To make matters worse, I had only a few moments that day

when the patches of fog in the forest were chased out by the warm, midday sun. To capture these lucky rays of sunshine meant I had to embrace the complexity.

**THE SOLUTION:** Using a 16–35mm lens, I zoomed to 35mm. And rather than a foreground element, I made the rays of light and a tree a center focus. By putting my subject in the center, the eye naturally excludes the other busy elements in the scene, letting the busy and not-so-lovely elements become a framing device.

*Ian Shive is the founder of outdoor photo agency TandemStock.com and the author of the forthcoming book The National Parks: An American Legacy (Earth Aware Editions).*

## A collage of various photographic products. It includes a large print of two King penguins, a slide of a couple in formal wear, a print of a ballerina, a square print of a woman in a red dress, a photo book with a couple on the cover, and a scalloped-edge print of a couple in a romantic pose.

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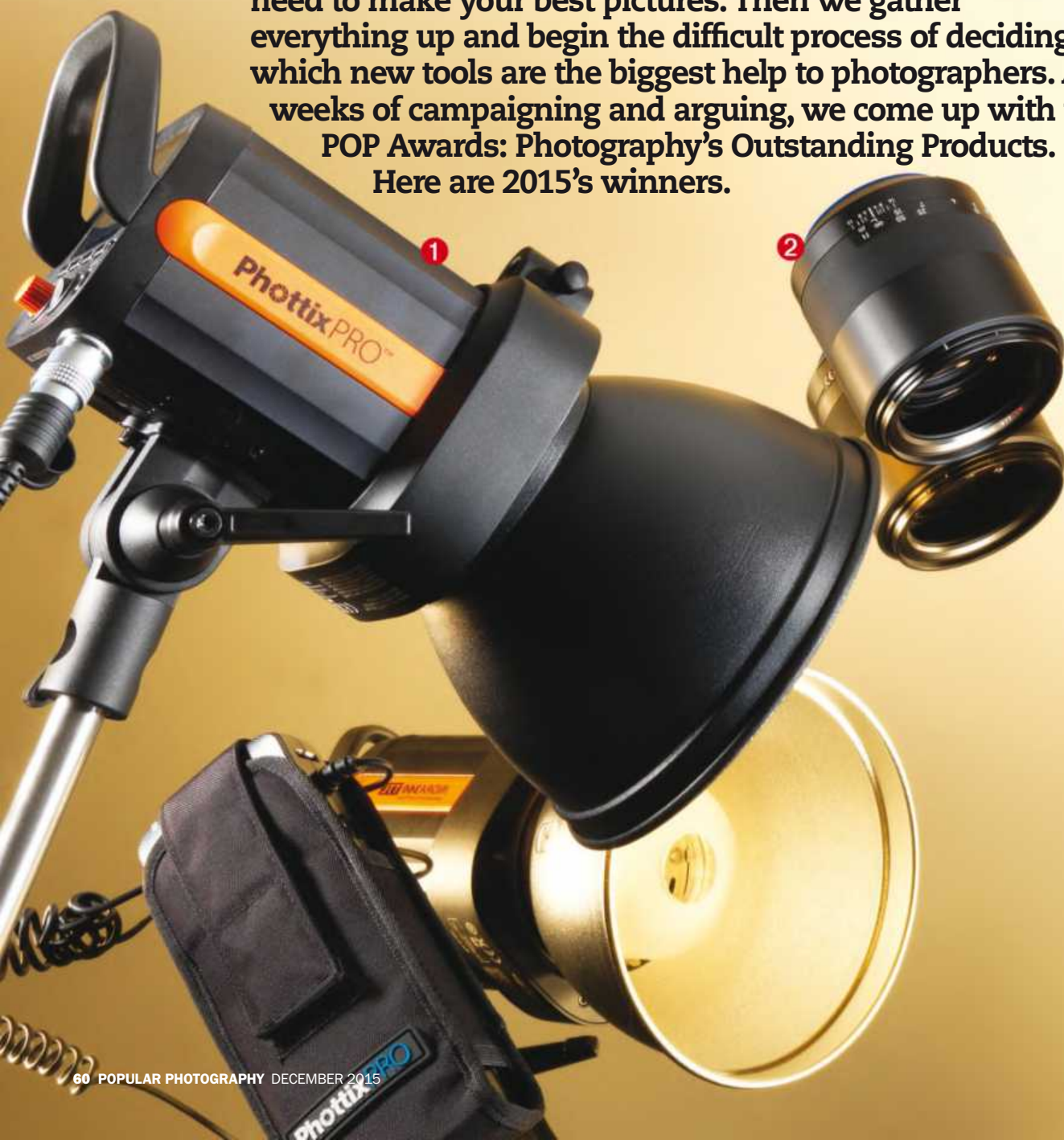
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TEXT BY THE EDITORS; PHOTOS BY BRIAN KLUTCH

# The Greatest Gear

Each year we scope out, test, and try all the stuff that you need to make your best pictures. Then we gather everything up and begin the difficult process of deciding which new tools are the biggest help to photographers. After weeks of campaigning and arguing, we come up with the POP Awards: Photography's Outstanding Products. Here are 2015's winners.





#### CONNECTED STROBE

### 1 Phottix Pro Indra360 Studio Light \$899

The first studio/location strobe with built-in receivers for wireless TTL control of Canon or Nikon systems, the Indra 360 also houses Phottix's own Odin system of wireless flash triggers. What wows us is the included Li-ion rechargeable battery that delivers up to 300 full-power pops per charge. Its maximum output is plenty for most uses, and it's compatible with DSLR flash features such as high-speed syncing to 1/8000 sec, second curtain syncing, flash exposure lock, flash exposure bracketing, and more.

#### ACCESSIBLE LINE

### 2 Zeiss Milvus Planar T\* 85MM f/1.4 \$1,799

All the lenses in Zeiss's more affordable Milvus line have a robust metal barrel and are optimized for high-res cameras—including those that shoot 6K video. The 85mm showed excellent SQF results on our bench—a result slightly sharper than the classic Zeiss Planar 85mm f/1.4 lens—and is practically distortion-free. Plus its cost falls between Zeiss Otus at \$4,490 and the older classic at \$1,083.

#### LIGHT AND LONG

### 3 Nikon AF-S NIKKOR 300MM f/4E PF ED VR \$1,997

Although we have not been able to test its new E mount on our lens bench, we are impressed with the way this 300mm telephoto lens behaves

in the field. Inside there is a Phase Fresnel element which enables it to be nearly the same size—and actually lighter than—Nikon's 24–70mm f/2.8. And the price makes it relatively accessible, too.

#### FRIENDLY FLASH

### 4 Canon Speedlite 430EX III-RT \$299

A major upgrade to the 430EX series of Canon mid-range flashes, this updated unit is loaded with pro-oriented features and accessories that will appeal to enthusiasts too. It's the first Canon flash at this price to offer wireless TTL radio control, and the first of any Canon flash to include a dome diffuser. In its wireless E-TTL II mode, it will operate in either Master or Slave capacities. The new icon-style LCD control is user-friendly and the flash head provides a wider swivel action, rotating 330 degrees, up from the 270 degrees of its predecessor the 430EX II.

#### BETTER BRACKET

### 5 ProMediaGear BBX Boomerang \$300

This flip flash bracket quickly and easily repositions a mounted flash above the lens when you reorient your camera from horizontal to vertical. Unlike other brackets

with a similar feature, the Boomerang is light—1 pound—and compact though well constructed, making it more convenient to use than its rivals. It provides full access to most bottom-located camera battery compartments, the hex key used to attach the bracket is held by a magnet within the bracket itself, horizontal and vertical orientations are click-stopped for instant positioning, and it's available in five upbeat colors to make the bracket less intimidating to portrait subjects.

#### DATA PROTECTOR

### 6 LaCie 4TB Rugged RAID \$400

LaCie's rubber-wrapped rugged hard drives have been popular for a while now, and this year the company put its brightly colored bumper around a bus-powered RAID with a built-in Thunderbolt cable and USB 3.0 connectivity. The drives house two 2TB hard drives that can be configured in RAID 0 or RAID 1, letting you use it as a speedy 4TB or a self-mirroring 2TB data vault.





#### SOFTBOX IN A SNAP

### ① Adorama

Glow QuadraPop  
28x38-inch **\$170, direct**

Anyone who has struggled to set up or break down a softbox will immediately appreciate the QuadraPop. This 28x38-incher goes from folded to usable and back in seconds. A light stand bracket, zippered case, two diffusion panels, and a cold shoe for shoe-mount flashes are also in the box. What we liked best, though, was its weight. At 2.5 pounds, the QuadraPop is light enough for you to handhold with a speedlight, no assistant required.

#### SHOOT THROUGH IT

### ② Westcott

Omega Reflector Kit **\$99**

With its center port closed, this Omega (shown below in its case) works like any typical diffusion-style



reflector. But remove the center pane and you can shoot straight through the reflector to make your portrait possibilities grow exponentially. You can, for example, backlight a portrait subject, creating a halo around the hair, while softly illuminating your subject's face with the same (bounced) light source while avoiding flare. It works equally well with strobes or natural light. Once you get the relative distances down, the fun begins.

#### GROUNDBREAKING

### 3 Samsung NX1 \$1,199, body only

As the first consumer camera to include an APS-C-sized back-side illuminated imaging sensor, the NX1 breaks new technological ground. In our test lab, that translates into a Low or better noise score all the way up to ISO 3200. It will also let you capture bursts at up to 15 fps with continuous AF tracking for up to 70 JPEGs or 25 RAW frames before the buffer fills. Video enthusiasts should

note that it can also capture 4K video at either the DCI standard resolution of 4096x2160 or the UHD standard of 3840x2160.

#### PHONE FRIEND

### 4 DxO One \$599

This small wonder (shown here paired with a phone so you can see how it works) turns your iPhone into a 20.2MP camera. A first for DxO, this pocketable camera is the go-to choice for the discerning iPhone photographer. We were impressed by its low-noise images (up to ISO 1600) as well as its color rendition and high contrast. Use its retractable Lightning connector to

transfer JPEGs and RAW files to your iOS device with speed and ease.

#### FAST GLASS FOR ALL

### 5 Tamron

SP 35mm f/1.8 Di VC USD \$599

This full-frame, fast prime lens, with Tamron's SP (super performance) pro optics, close focusing to 7.75 inches, and maximum magnification of 1:2.31, is the best in its class. Our tests (page 84) of its Vibration Compensation system showed an average of 2.66 extra stops of sharpness—a great result. And all these features come at a price that is shockingly low.





#### NEW INKS

## 1 Epson

**SureColor P600 \$778**

While retaining the best features of its predecessor, the Stylus Pro 3000 (such as the paper feed mechanisms and ink cartridge size), the P600 features the new UltraChrome HD inkset as well as extended print sizes (now up to 129 inches long). Most notably, this model introduced a 2.7-inch color touchscreen, making it a breeze to navigate through menu options.

#### BETTER THAN EVER

## 2 Tokina

**AT-X 11–20mm f/2.8**

**Pro DX \$549**

When the previous version of this APS-format lens—the 11–16mm f/2.8—was released in 2008, we gave it a POP Award. Now that the focal length has been expanded to 20mm, we like the new version even better. At 16 and 20mm we found only Imperceptible barrel distortion, a great result for such a wide lens. And there was no vignetting at those two focal lengths, either. At a nice price, this Tokina offers Canon and Nikon APS shooters a great option in an ultra-wide, fast zoom lens.



#### ACTION CAM EVOLUTION

### 3 GoPro

Hero4 Session **\$275**

GoPro moves away from its very recognizable form factor with this new small, light, and powerful camera. Natively waterproof, so it doesn't need a case, this tiny tank shoots 1080p video at 60 fps and sports two microphones.

#### NOISE CONTROL

### 4 Panasonic

Lumix GX8 **\$1,198, body only**

The first Micro Four Thirds camera body to use a sensor greater than 16MP, the GX8's 20.3 LiveMOS earns an Excellent rating in our lab test up to ISO 800. Most impressive is its noise performance. The camera doesn't reach an Unacceptable rating until its top sensitivity of ISO 25,600. Furthermore, it holds on to top honors with an Extremely Low rating up to ISO 1600. Meanwhile, its highly customizable touchscreen and hard-button controls make operation a joy.

#### TOP OF THE GLASS

### 5 Sigma 24mm

f/1.4 DG HSM A **\$849**

One of the best lenses we've ever tested, this full-framer was described by one editor as "over-the-top extraordinary." Its Excellent-range SQF numbers topped the comparable 24mm f/1.4s of Canon, Nikon, and Rokinon. At f/2, this was true even at magnifications up to 20x24 inches, an unparalleled feat. Distortion and edge vignetting control were also leading, with the one exception of the Nikon 24mm f/1.4, which beat it by a half-stop.

#### SIMPLE SOLUTION

### 6 Peak Design

Everyday Messenger

**\$250, direct**

Stylish and highly functional, the Everyday Messenger is the first bag from Peak Design. It has attachment points on either side to let you attach the company's Capture clip camera mounts, and its FlexFold dividers let you customize the inside to hold plenty of lenses and accessories in addition to a camera. Those dividers eschew the very thick padding you find in many messenger bags without compromising gear protection, so the bag doesn't end up feeling too large. A unique latch on the front makes the bag easy to open and close with one hand.

#### SUPER RESOLUTION

### 7 Canon

EOS 5Ds **\$3,399, body only**

Redefining the limits of fine detail for the 35mm full-frame format, Canon's 5Ds delivers the highest 35mm resolution test result to come out of the Popular Photography test lab, and keeps noise well under control through ISO 1600. Add that the camera is weather-sealed, can capture bursts at up to 5 fps, and has 61 selectable AF points that provide very speedy focusing, and you've got one amazing DSLR.

#### UNUSUAL WIDE

### 8 Canon

EF 11-24mm f/4L USM

**\$2,999**

This is the widest-angle non-fisheye full-frame zoom in current production, and it aced every test we threw at it. With six specialty glass elements and three coatings for flare and glare control, it edged out its closest rival, the Sigma 12-24mm, with Excellent-range SQF scores at all focal lengths. It produced Visible-range barrel distortion at 11mm, but considering the lens is nearly a fisheye, that's acceptable. By 18mm distortion was in the Imperceptible range—our top designation. Like some f/1.4 ultra-wides, it foregoes filter threading; Canon provides a rear gelatin-filter holder, a nice touch for this 4.25 inch-wide diameter.



#### FLYING TIME

### 1 Yuneec

Q500 4K Typhoon Quadcopter **\$1,299**

Plenty of new drones came out this year, but most are either very expensive or not built to last. This more accessibly priced drone from Yuneec is easy to fly and has an advanced 4K 30-fps video camera on a gimbal to keep your images stabilized. The controller is advanced, too, but is also easy to figure out and has a built-in screen. Not flying? There's a hand grip so you can use the camera without the drone.

#### BEAUTIFUL PRIME

### 2 Fujifilm

Fujinon XF 16mm f/1.4 R WR **\$999**

In 2015, Fujifilm continued to build out its APS-C lens lineup for its X-series cameras, and this represents the cream of that crop. With a great hand feel and smooth manual focus ring, the lens also provides easy-to-read markings that include a depth-of-field scale for all apertures—almost unheard of these days. It has superb weather sealing. And the maximum subject magnification is 1:4.3 at a very tight focusing distance of 5.75 inches—the closest focusing ultra-wide lens we've tested.

#### TAILOR-MADE BAG

### 3 Think Tank

Trifecta Camera Bags **\$140, mirrorless; \$160, DSLR**

This bag is cleverly built for all of those photographers who carry a wide-angle zoom, a standard zoom, and a 70–200mm lens mounted to a camera. The mirrorless version has space for an Apple iPad mini, and the DSLR pack has space for an iPad.

#### 4K COMPACT

### 4 Sony

Cyber-shot DSC-RX 100 IV **\$948**

Marking the first non-smartphone consumer camera to include a stacked sensor, which merges the imaging sensor with processing and DRAM memory in one big pile of silicon wonderfulness, the RX100 IV packs a lot of capabilities into a compact camera. It includes a pop-up OLED EVF and a fast 24–70mm (equivalent) zoom lens with optical stabilization, and it delivers very nice stills that can be ported over to your smartphone through Wi-Fi. More impressive is that this small camera can capture 4K video at 3840x2160, or 1920x1080 video in slow motion down to 40 times slower than real time.





## SUPER SEARCHER

### 5 Google Photos

Free

This unlimited, cloud-based photo storage provides the effective search capabilities you'd expect from Google. After 24 hours of post-upload processing, you can search for specific people, places, and things without having entered key words or tags. You can, for example, search for "dogs" and Google will quickly display your canine pix. If you want a specific dog, say a poodle, Google can find those, too. Multiple search terms are possible: "poodle" and "pool" will find—you guessed it—poodles near pools. You can view, edit, and share files across most digital devices.

## AMAZING RES

### 6 Sony Alpha

7R II \$3,198, body only

Capitalizing on the success of the 7R, Sony's sophomore release of this interchangeable-lens compact camera integrates the first ever back-side illuminated full-frame

sensor into an ILC. Improving upon its predecessor, the II has a redesigned shutter mechanism that reduces vibration and adds five-axis image stabilization. And with its 42MP output and ISOs ranging from 50 to 102,400, we were impressed with the resolution, color accuracy, and overall image quality of this tiny but powerful game-changer.

## BOKEH BEAUTY

### 7 Sony

Zeiss Distagon T\* FE 35mm f/1.4 ZA \$1,598

One of the most luxurious lenses Sony has made yet in the FE mount, this 35mm boasts a nine-bladed aperture for lovely circular *bokeh*, a minimum focusing distance of 11.8 inches, rugged construction with dust and moisture resistance, and an aperture ring that can be used with or without click stops. Though it doesn't use mechanical helicoids for manual focus, we appreciated the near-instant responsiveness of the wide focusing ring.

## PROTECTOR'S

### 8 Hoya

HD3 Filters From \$56

Don't leave your front lens element out among the elements—protect it with a filter. Hoya's HD3 filters have a 32-layer, ultra-hard nano-coating that makes them unbelievably tough. In both UV and Circular Polarizer types, these are also optimized for high-megapixel sensors and won't impede resolution.



# BEHIND


Pictures by Lois Greenfield;  
text by Theano Nikitas

# THE CURTAIN

Master dance photographer Lois Greenfield's images capture elegant motion. Her pictures appear to defy reason, logic, and even the laws of physics. On the release of her new book, she reveals to us exactly how she does it. Hint: it's not Photoshop.







**FOR DECADES**, Lois Greenfield's photographs of dancers have inspired viewers with their beauty—and their intrigue. "The point," she says, "is not to have the viewer figure out what is going on in the photo, but to present the mystery of an instant."

Watching Greenfield work, whether in a crowd at a busy trade show or in one of her workshops, is as inspiring as her photographs. The ease with which she collaborates with her subjects is amazing; she knows exactly when to trigger the shutter, pausing on occasion to suggest a

slight adjustment to the dancer's movement or timing before they go again—"one more time." And as any dancer who has worked with Greenfield knows, "one more time" may be repeated several times until that magic moment is captured and preserved.

As a photojournalist early in her career, Greenfield covered a number of different beats—including dress rehearsals of dance performances. After ten years of that, however, she grew tired of documenting choreography in poor lighting. Instead, she

**OPPOSITE:  
SHEER BEAUTY**  
Dancer Sophie Kuller was captured with a Hasselblad 500 C/M, Leaf Aptus II 7 digital back, and a Hasselblad 100mm Planar lens at ISO 50, 1/250 sec f/8. All images in the story use these settings unless otherwise noted.

**THIS PAGE:  
BOUNCE**  
Greenfield asked dancer Jennifer Minzy Lee to jump on a trampoline, a prop the photographer rarely uses.



says, she wanted to “use dancers in my own exploration of movement.” And that’s exactly what she’s been doing for the past 30-plus years.

“I wanted the dancers to express themselves in new and different kinds of ways,” Greenfield explains, “so I encouraged them to create these split-second moves that actually could never be part of a dance.” Her images have always generated questions—viewers often wonder if the figures were suspended from wires or were composited using software. But Greenfield, who continues to be one of the most well-respected and innovative photographers in her field, captures them all in the camera.

## Get Started

If your familiarity with dance is limited, Greenfield recommends developing a relationship with a local college dance department, dance studio, or dance company, and ask to photograph their dress rehearsals. “This is a way to learn and to get familiar with the

language of dance” without having to direct the dancers. By shooting rehearsals, she says, “you don’t have to worry about telling the dancer what to do; just shoot the best moments you can.”

When you are ready to work with someone privately, you’ll have a portfolio of images to show your skills and a contact list of dancers. For shooting rehearsals, Greenfield recommends using a DSLR set at ISO 3200 and 1/250 sec with an aperture between f/2.8 and f/4.5. Set it to continuous AF and bring a 24–70mm lens; a 70–200mm is recommended too.

For private shoots, get a signed model release. In addition to the standard terms, Greenfield strongly recommends including a clause that releases you from liability in case of injury or accident. Of course, she adds, “You should not allow the dancer to do any moves that seem risky.”

Greenfield almost exclusively photographs in the studio. As she points out, “you can really shoot dancers in any room with a wall,

**CLOCKWISE:**  
**BALANCE**  
Greenfield captured this on Kodak Professional Plus-X 125 Film (1/250 sec at f/11, ISO 125) as a commission for an arthritis drug. She asked Andrew Pachó to imagine partner Lisa-Marie Lewis as a bubble on his finger.

**ANYTHING MIGHT BE A PROP**  
Always on the lookout for unusual props, Greenfield brought the orange hammock used by dancer Ha-Chi Yu back from Belize.

**SUBTLE MOTION**  
Performer Maureen Fleming’s movements are so slow that they’re often imperceptible. As she changed form, the fabric became a moving extension of her body’s stillness.



a wood floor, and enough room for the dancers to jump—most dancers can do a jump in a couple of paces.”

A white backdrop, whether a wall, paper, or a piece of muslin (Greenfield uses the latter in her studio and stretches it taut), is ideal. “White is great because it’s versatile,” explains Greenfield: “Depending on how you light it, it can be white, light grey, or dark grey.” But seamless paper and fabric are slippery and can be dangerous. Greenfield recommends you bring it to the ground and tape it without creating a sweep, adding that even without a sweep, a separate piece taped to the floor is still too slippery to dance on. Avoid concrete surfaces too; a wood floor is best because it has a certain amount of flexibility and is easier on a dancer’s body.



## Prepare the Shot

Despite the visual complexity of Greenfield's images, the setup itself is quite simple. She shoots using manual exposure with a Hasselblad 500 C/M and Leaf Aptus II 7 digital back mounted on a tripod. And her settings are consistent: ISO 50, 1/250 sec shutter speed and, for adequate depth of field, an aperture between f/5.6 and f/8. She focuses manually on a predetermined spot, which is marked for the dancers, and shoots only one frame at a time, usually using 120mm CF Makro or 100mm Planar lenses (76mm and 50mm equivalent, respectively). The focal length you use will depend on the size of the studio but, notes Greenfield, "you want to be as close as you can because that will make the dancers appear to have more volume and look more sculptural" as the lens-to-subject distance decreases.

You don't need a medium-format camera or a digital back to make great images, though. A tripod-mounted DSLR will work fine; just be sure that the shutter is responsive enough to capture the exact moment you want.

Greenfield shoots tethered to check for composition, focus, and details such as whether the dancer's expression is relaxed and eyes are open. "I'll bring the dancers over to the monitor now and then to show them the images," says Greenfield. This allows her to suggest possible changes to the movement, facial expression, or

**IMPROVISATION**  
Neither Greenfield nor dancer Jordan Isadore could figure out how he had twirled the scarf this way, creating a unique moment.

use of a prop or costume element.

If you use a tripod and set framing and focus points beforehand, you may be able to avoid shooting while looking through the viewfinder. According to Greenfield, this will better allow you to engage

with what's happening in front of the camera. Ideally, you'll keep your eyes on the dancers and your finger on the shutter.

And don't forget the lighting. This can be as simple as a single beauty dish with or without a grid, lighting





a dancer from overhead, as used in the image on page 68. Greenfield uses this setup to create what she describes as a “modulation of tonal value” in which “things disappear into darkness and it retains an air of mystery.”

Alternatively, she often sets her key light—with an umbrella or Broncolor Satellite Soft—at a three-quarter angle to her left because “it has a good spread over the entire shooting area and has a directional quality that gives you sculptural shadows,” she says. Additional strobes are positioned to illuminate both sides of her backdrop at about 3/4-stop brighter than the key light to create a white background.

A flash duration of 1/2000 sec or faster is critical to capturing the split-second moments in Greenfield’s images. To achieve that speed, The photographer uses Broncolor Graft power packs with a bi-tube head. Set your strobes to the shortest duration possible, and remember that lower power settings deliver a faster burst of light. At slower speeds, you may notice a slight blurring of the feet if the dancer is moving very quickly.

## Capture the Magic

Spontaneity and collaboration with the dancers is key for Greenfield’s work. She recommends that you try to have an assortment of props on hand. Long cuts of lightweight fabric are photogenic and complement the dancers’ movements. Let your subjects improvise with the props and see what evolves. “One thing that truly excites me is when you bring in a prop and you’re surprised by what happens,” the photographer explains of her process. “If I knew what the picture was going to look like, I wouldn’t be interested in taking it.”

Keep in mind, though, that less experienced dancers generally need more direction, so be prepared with a few ideas. According to Greenfield, asking them to jump is often a good way to start. Then, when something works, refine the movement.

Give the dancers a defined area to move in so they’ll be in the light, and show them the spot you marked. One of the reasons Greenfield manually pre-focuses is that she needs “an instantaneous shutter response. With autofocus,” she points out, “there is a delay between

## ALL TOGETHER NOW

**Although not based on a choreographed routine, these members of the Martha Graham Dance Company used a signature jump to create this group shot. The dancers and Greenfield timed it perfectly. This image was captured on Kodak Ektachrome 100 Plus EPP 6005 film.**

pushing the shutter and the time it takes the camera to measure the distance to the subject and capture the moment.” And, she continues, “shoot single shot rather than burst mode. If I shot with a motor drive, which I never do, I would get some intervals of the movement, but it wouldn’t necessarily be that magic moment.” With continuous shooting, “you’re giving over your decisive moment to the camera and you won’t necessarily get the moment that’s most expressive.” Plus, most strobes can’t recycle fast enough to keep up with burst shooting.

She also cautions against photographing the “peak” movement, which can look static. Rather, try for the “split second before or a split second later that shows the movement in flux.” Greenfield’s images are enigmatic narratives with the dancers ascending or descending, fleeing or running towards something. In a sense, the photographer explains, “it makes the movement—and the image—appear dynamic.”

*Greenfield’s latest book, Lois Greenfield: Moving Still (Chronicle Books/Thames & Hudson), is out this winter.*



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AUTHORITATIVE TESTS, REVIEWS, & BUYING ADVICE



ILC TEST

## MEGA MFT

**Micro Four Thirds finally  
reaches 20MP with the GX8**

**FOR YEARS NOW**, despite APS-C and full-frame sensors adding pixels with seeming abandon, the Micro Four Thirds crowd remained at 16MP for its top pixel count. But now, with Panasonic's new Lumix GX8, the number has grown to 20.3MP. This update to the GX7 also adds 4K video recording, Panasonic's 4K photo mode, dual image stabilization, and a few

changes to the design of the body.

Given that the GX7 was one of our favorite Micro Four thirds bodies of its generation, we were eager to put the GX8 (\$1,198, street, body only) though the paces in the *Popular Photography* Test Lab and out in the field.

### In the Test Lab

The GX8's extra pixels seem to

be what was needed to bring the GX line back to an Excellent overall image quality rating. Plus, superior noise control let the camera keep that rating from its lowest sensitivity of ISO 100 up to ISO 800.

In our color accuracy test, the GX8 earned top honors with an average Delta E of 7.9 that falls just below our cutoff of 8 for

**PANASONIC  
LUMIX GX8**

### KEY SPECS

**SENSOR:** 20.3MP  
LiveMOS (Four Thirds)

**SENSITIVITY:**  
ISO 100–25,600

**BURST RATE:** 8 fps

**AUTOFOCUS:** Contrast  
detection

**PRICE:** \$1,198, street,  
body only

**INFO:** panasonic.net





an Excellent rating in this test, where lower scores are better.

While noise has usually been the limiting factor for the image quality ratings of all Micro Four Thirds cameras, it was resolution for the GX8 that bounded the span of ISOs at which the camera earned an Excellent score. The GX8 turned

in 2660 lines per picture height at ISO 100. It holds its resolving power impressively as the sensitivity rises, with 2610 lines at ISO 400, and 2550 at ISO 800. As sensitivity rises from there, the resolution drops off more severely. At ISO 1600 the camera captured 2340 lines, dropping to 2100 lines at ISO 6400, 2010 lines

at ISO 12,800, and finally 1925 lines at ISO 25,600.

The GX8's most impressive lab test results were for noise. The custom version of SilkyPix that Panasonic ships with the camera uses default settings for noise reduction that are tailored to each sensitivity setting. This is great—it gives photographers who are new to processing RAW images a good starting point and, since it shows the default numerical settings, you can get a feel for how any manual adjustments will compare. It also gives us a sense of what Panasonic thinks is the best balance of noise reduction and resolving power.

The GX8 kept noise to a Low or better rating on our scale all the way up to ISO 6400. The camera scored Extremely Low (the top rating in this test) from ISO 100 through ISO 1600. Noise didn't reach Unacceptable until its highest sensitivity of ISO 25,600. Panasonic only recently started to provide proper noise reduction defaults, so comparisons to previous tests will look odd. However, the GX8 manages to improve over the GX7's test results significantly.

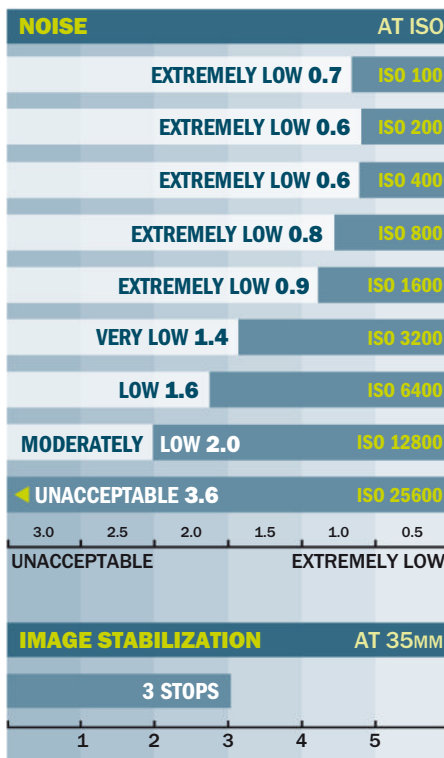
Panasonic's new dual image stabilization system, much like Sony's five-axis system, lets the sensor-shift stabilization in the camera body work in tandem with the optical stabilization in the lens. When we used it with Panasonic's 12–35mm f/2.8, with the lens racked out to its full-frame equivalent of 70mm, our testers were able to get an average of 3 stops of shutter-speed advantage. So, if you'd normally want a shutter speed of 1/80 sec when handholding at a 70mm equivalent field of view, you could likely get by with a shutter speed of 1/10 sec. If your subject is moving, it will still blur, but stationary objects in the scene should be sharp.

**What's Hot**  
20.3MP LiveMOS sensor, highest pixel count in Micro Four Thirds

**What's Not**  
No pop-up flash

**Who It's For**  
Shooters looking for as much resolution as they can get in a Micro Four Thirds camera

# TEST RESULTS



## SPECIFICATIONS

**IMAGING:** 20.3MP effective, Four Thirds-sized Live MOS sensor captures images at 5184x3888 pixels with 12 bits/color in RAW mode

**STORAGE:** SD, SDHC, SDXC (UHS I) slot stores JPEG, RW2 RAW, RAW + JPEG, MPO files

**BURST RATE:** Full-sized JPEGs (Fine mode), up to 100 shots at 8 fps; RAW (12-bit), up to 30 shots at 8 fps

**AF SYSTEM:** TTL contrast detection with touch selectable focus across entire frame; single-shot and continuous AF with face detection and subject tracking

**SHUTTER SPEEDS:** Mechanical: 1/8000 to 60 sec, plus B (1/3-EV increments). Electronic: 1/16,000 to 1 sec.

**METERING:** 1,728-zone TTL metering, Multi-pattern (evaluative), centerweighted, spot (size of spot not specified); EV 0-18 (ISO 100)

**ISO RANGE:** Standard: ISO 200-25,600 (in 1/3-

EV increments). Expanded: ISO 100-25,600.

**EVF:** Tilting OLED with 2,360,000-dot resolution, 1.54X magnification (0.77X full-frame equivalent)

**VIDEO:** Records at up to 3840x2160p30 in MP4 or 1920x1080p60 in AVCHD Progressive format; built-in stereo microphone; stereo mic input. Maximum clip length: 29 min. 59 sec.

**FLASH:** No built-in flash

**MONITOR:** Articulating 3-inch OLED touchscreen with 1,040,000-dot resolution; 13-step adjustments for brightness, contrast, saturation, red tint, and blue tint

**OUTPUT:** USB 2.0, micro HDMI video, composite video

**BATTERY:** Rechargeable DMW-BLC12PP Li-ion, CIPA rating 310 shots

**SIZE/WEIGHT:** 5.2x3.1x2.5 inches, 1.1 lb with a card and battery

**STREET PRICE:** \$1,198, body only

**INFO:** panasonic.net

the GX7 has been replaced with a wheel on the camera top with a small button embedded in it that lets you switch between two configurations for these two wheels. This can be really helpful if you like direct access to numerous settings through a command wheel. The mode dial moves left, placed atop another dial for exposure compensation. While we initially felt it a bit of a stretch to move that dial with a thumb, we eventually adjusted and could use it quickly and accurately.

One downside to the redesign is that the exposure comp dial sits where the pop-up flash was on the GX7. So, the GX8 has no built-in flash. If you want a flash, you'll have to buy an accessory unit, such as Panasonic's DMW-FL360L (\$227, street), for the camera's hot shoe.

The GX8 retains its predecessor's tilting electronic viewfinder, which can come in handy when shooting at low angles. If you're shooting really low to the ground, you'll likely end up framing instead with the articulating LCD touchscreen that flips out to the left side of the body and tilts up and down.

As is often the case with Lumix cameras, this one has lots of buttons, a good number of which can be programmed for different functions. By combining the touchscreen controls, also highly customizable, with the hard buttons, Panasonic makes it really easy for you to customize your controls in ways that enhance your own shooting experience.

While we weren't able to provide a full critical assessment of the 4K video capture, the footage we captured looked quite nice when played back through the camera itself. The HD footage we shot also looked very nice,

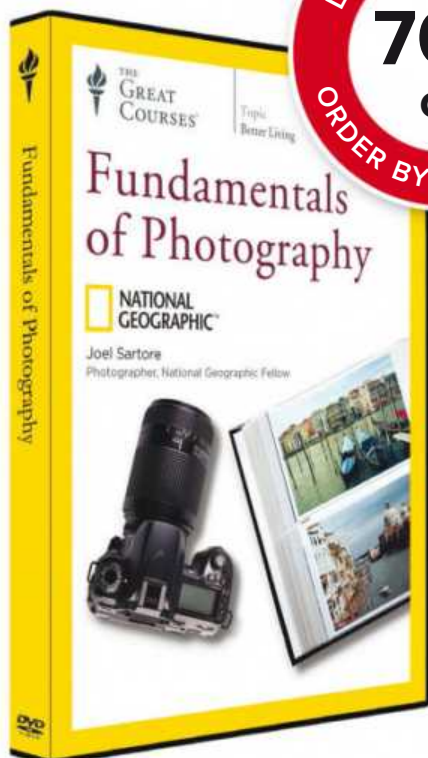
## In the Field

Panasonic made some substantial differences in body design with the GX8 compared to the GX7. The grip is more prominent and more comfortable to hold. The

shutter button is moved forward a bit and angled forward for better ergonomics. There are still two command wheels, but the clickable wheel that had been embedded in the camera back on

**WI-FI APP**  
Want the right app for the GX8? Use the Panasonic Image App, not the older Lumix Link.





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showing very minimal jello effect on fast-moving subjects and offering plenty of detail and very pleasing colors.

Burst shooters will likely sit up and take notice when they see that the GX8 captures up to 8 frames per second for up to 30 RAW frames or 100 JPEGs per burst. However, the EVF will blank out some during the burst at that speed making panning a tad difficult and it'll slow to 6 fps if you have continuous AF enabled. If you dial down to the medium burst speed of 5.5 fps, you'll have a near-constant view during burst that is more akin to what DSLR shooters get. That's still fast enough for most amateur sports, and we found that the subject tracking did a good job of keeping up even with the 6 fps mode.

While the Wi-Fi worked very well after our setup, we did stumble a little bit when trying to

connect the camera to a Samsung Galaxy S6 for the first time. We eventually found that the easiest way to pair them initially is to download the Panasonic Image app and start it. Navigate through the camera's menus to Wi-Fi Function, then New Connection, then Remote Shooting and View. The camera will display a QR code; select QR from the app's home screen, place the displayed code into the blue box on the app's screen, and the devices will pair themselves. Subsequent connections will then go very smoothly. The main problem we encountered was getting lost within the many Wi-Fi options that are available.

### The Bottom Line

The GX8 is a well thought-out upgrade to the GX7. We were hard pressed to find a camera to compare it with, as most

### GET CREATIVE

Like most cameras do, the GX8 includes numerous filter options to jazz up your shots, as well as fun shooting modes, such as multiple exposure, time lapse, and stop motion. Those last two will even automatically compile multiple stills into a movie.

in this price range are either significantly larger DSLRs or more outdated models, such as Fujifilm's somewhat long-in-the-tooth X-T1. The Fujifilm sports a 16MP sensor, so its test results trail slightly behind the GX8. Plus, if video recording is important to you, the GX8 is a better choice than the Fujifilm.

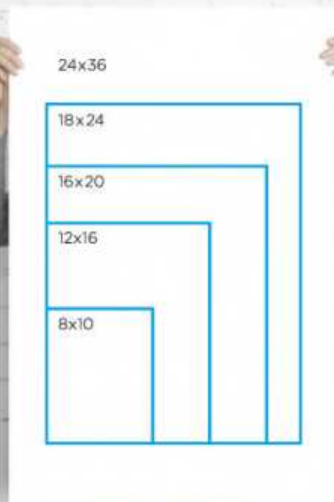
Current GX7 owners may rightfully be tempted to upgrade to the GX8, since it provides both better image quality and a more comfortable and high-end shooting experience. However, with these comes a heftier price tag. When the GX7 was first announced, it went for \$999 (body only), some \$200 less than the GX8 now. We can't decide how to spend your money for you, but we can say that we are happy to see real progress as Micro Four Thirds moves beyond the limits of 16MP. —Philip Ryan

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# HOT ONE

## Nikon fills out its roster of f/1.8 primes

**NIKON HAS** expanded its line of five full-frame f/1.8 primes—the 20mm, 28mm, 35mm, 50mm, and 85mm Nikkors—by adding this 24mm f/1.8G ED for an even six. Almost as fast as Nikon's famed 24mm f/1.4G ED, this f/1.8, as you might expect, is both lighter and more affordable (\$747, street).

A fast 24mm (or 36mm on a Nikon APS-C body) like this lets you superbly capture landscapes, interiors, and group portraits, with the benefit of smooth *bokeh* at the widest apertures. And this new 24mm f/1.8G has Nikon's Nano Crystal Coating, two ED and two aspherical elements, as well as Nikon's Silent Wave Motor autofocus system.

Also as you would expect, at 3.31 inches long, this Nikkor is more compact (by between 0.25 and 0.75 inches) than all the f/1.4 primes in our comparative set of five tested 24mm and 25mm lenses. (Of the five, the Zeiss 25mm f/2 was the shortest by far at 2.91 inches.) At 0.86 pound, our test lens also weighed less than the rest; the Sigma 24mm f/1.8 EX DG AF comes closest at 1.07 pounds. The new lens's light weight is definitely a welcome bonus.

On our test camera, the Nikon D4s, this 24mm balanced nicely. All markings are large and legible, with the exception of a tiny, single-aperture (f/16) depth-of-field scale. (We're grateful for it, just the same.) In field use, AF was lightning-fast, silent, and accurate. The manual focus ring is large and easily gripped. Our only gripe with the MF ring is the somewhat short turning radius of 80 degrees—we would

have liked something a little longer for finer focusing.

Our optical bench tests found Excellent-range sharpness and contrast, with SQF results almost matching those of the Canon, Nikon, and Rokinon f/1.4 lenses at our 11x14-inch benchmark. Surprisingly, this new lens beat the much more expensive Nikon f/1.4 at both 16x20- and 20x24-inch enlargement sizes.

In our tests using DxO Analyzer 5.3, distortion was in the Slight range for this and all its rivals (except the Rokinon, which dipped into Visible numbers). As for vignetting, light falloff was gone by f/3.5, not as good as the Nikon f/1.4 lens but much better than the rest of the competitors, which displayed falloff out to f/4 and f/5—kudos to Nikon.

This new f/1.8 focuses down to a tight 8.37 inches—closer by 0.75 to 1.5 inches than the 24mm f/1.4 glass from Canon, Nikon, and Zeiss. Only the Sigma f/1.8 focused closer, to 7.25 inches. With maximum subject magnification, this Nikon f/1.8 was the best at

## TEST RESULTS

**DISTORTION:** 0.26% (Slight) barrel

**LIGHT FALLOFF:** Gone by f/3.5

**CLOSE-FOCUSING**

**DISTANCE:** 8.37 inches

**MAXIMUM MAGNIFICATION RATIO:** 1: 3.92

## SPECIFICATIONS

**24MM** (24.46mm tested), f/1.8 (1.78 tested), 12 elements in 9 groups. Focus ring turns 80 degrees.

**DIAGONAL VIEW ANGLE:** 84 degrees

**WEIGHT:** 0.86 lb

**FILTER SIZE:** 72mm

**MOUNTS:** Nikon AF

**INCLUDED:** Lenshood, soft case

**STREET PRICE:** \$747

**INFO:** nikonusa.com



**What's Hot**  
Light, sharp,  
fast-focusing  
with reasonable  
distortion control

**What's Not**  
Somewhat short  
turning radius for  
the MF ring

**Who It's For**  
Nikonians into  
well-built, high-  
speed primes

1:3.92, again except for the older Sigma f/1.8, which was 1:2.7.

Then there's the price. The Nikon f/1.8 costs about one-third as much as Nikon's f/1.4 version, which streets for a whopping \$2,197. (We complained in our test of June 2010 that the lens was expensive. Back then, the closest Nikon lenses were a "D" AF version at \$392 and a bargain-basement 24mm f/2.8 film-era optic, which, by the way, is somehow still in the Nikon catalog as a manual-focus option at \$537.)

Now with this f/1.8 lens, Nikon shooters have a real alternative to either of these oldies. And a very good one at that.

—Julia Silber

## SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

Size	5x7	8x10	11x14	16x20	20x24
1.8	93.5	93.5	93.0	87.9	81.6
2.0	93.5	93.5	93.0	89.1	83.5
2.8	93.5	93.5	93.0	90.7	86.1
4.0	93.5	93.5	93.0	90.4	84.0
5.6	93.5	93.5	93.0	89.0	83.3
8.0	93.5	93.5	93.0	88.1	83.4
11.0	93.5	93.5	93.0	86.8	82.9
16.0	93.5	93.5	93.0	87.8	81.2

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# PRIME DUO

## Tamron expands into full-frame primes

**TAMRON HAS** moved away from its comfort zone in the zoom space and joined the growing group of third-party lens makers who are expanding into what might be called the new luxury prime market. These competitors include Sigma, Zeiss, and, to some extent, Rokinon, whose premier lenses generally provide large apertures, all-metal barrels, great builds, protection from moisture and dust, and sophisticated cosmetics that include sleek, matte black surfacing, crisp white barrel markings, finely ribbed focusing rings, and an overall luxurious feel in use.

New to Tamron's flagship SP line of Super Performance pro-oriented glass are a pair of surprisingly similar single-focal-length lenses: the 35mm and 45mm f/1.8 Di VC USD primes (each \$599, street). The new Tamrons sport a now-familiar satiny black finish and the other handsome cosmetics prevalent in this category. Unlike premium glass from rival companies, however, these Tamrons are the rare primes that throw in Vibration Compensation. Tamron says it did this to accommodate the rising trend of super-high-resolution cameras (such as the Canon EOS 5Ds), which can record even miniscule evidence of camera shake.

Inside, both of these Tamrons have one LD (Low Dispersion) and two molded-glass aspheric elements; the 35mm adds an element of XLD (Extra Low Dispersion) glass. Tamron's proprietary Floating system is built into both—the company claims this helps reduce the minimum focusing distance and increase sharpness across the entire focusing range. On most APS-C-

sensor bodies, the 35mm and 45mm scale up to, approximately, a 53mm and 68mm (56mm and 72mm on Canon), respectively.

On our test camera, the Canon EOS-1D X, both of these Tamrons had a solid, well-balanced feel, and like all wide-angle f/1.8s they were on the heavy side—the 45mm especially so relative to typically featherweight 50mm f/1.8 glass. Both lenses boast extra resistance to moisture and dust, thanks to O-rings around the lensmounts. Their Ultra Silent Drive (USD) autofocus motors delivered extremely quiet, quick, and accurate AF and also allow manual touch-ups in the AF mode. With a smooth and even turn and large, easy-to-read subject distance scales, manual focusing with both was a breeze.

On our test bench, the 35mm produced Excellent-range SQF

### TAMRON SP 35MM F/1.8 Di VC USD

## TEST RESULTS

**DISTORTION:** 0.14% (Slight) barrel  
**MACRO DISTORTION:** 0.18% (Slight) barrel  
**LIGHT FALLOFF:** Gone by f/2.5  
**MACRO LIGHT FALLOFF:** None  
**CLOSE-FOCUSING DISTANCE:** 7.75 inches  
**MAXIMUM MAGNIFICATION RATIO:** 1: 2.31  
**IMAGE STABILIZATION:** 2.66 stops  
**MACRO IMAGE STABILIZATION:** 1.25 stops

## SPECIFICATIONS

**35MM** (35.44mm tested), f/1.8 (1.82 tested), 10 elements in 9 groups. Focus ring turns 160 degrees.  
**DIAGONAL VIEW ANGLE:** 63 degrees  
**WEIGHT:** 1.14 lb  
**FILTER SIZE:** 67mm  
**MOUNTS:** Canon AF, Nikon AF, Sony AF  
**INCLUDED:** Lenshood, SilkyPix Developer Studio 4.0 software  
**STREET PRICE:** \$599  
**INFO:** tamron-usa.com



### What's Hot

One of few high-speed primes with stabilization

### What's Not

At 160 and 190 degrees the MF turning radius is too long for fast focusing

### Who It's For

Canon, Nikon, and Sony shooters who prefer primes to zooms

results, slightly better than the full-frame Canon 35mm f/2 IS and the Sigma 35mm f/1.4. Other comparable lenses we've tested, however—the Nikon 35mm f/1.4G, Rokinon 35mm f/1.4, and Zeiss Distagon 35mm f/1.4—produced slightly better SQF numbers at the benchmark magnification of 11x14 inches.

In our distortion tests using DxO Analyzer 5.3, the Tamron 35mm in the normal and macro focusing ranges showed Slight barrel distortion (0.14% and 0.18%, respectively). These results were slightly better than the Canon (0.19%), Nikon (0.26%), Rokinon (0.28%), and Zeiss (0.22%). Only the Sigma (0.12%) topped the Tamron.

Light falloff left the edges by

CONTINUES ON PAGE 93

## SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

Size	5x7	8x10	11x14	16x20	20x24
1.8	81.4	93.0	93.0	87.9	81.4
2.0	81.4	93.0	93.1	88.0	81.6
2.8	81.4	93.6	93.6	89.0	83.2
4.0	81.4	93.6	93.6	90.2	85.3
5.6	81.4	93.6	93.6	90.1	85.0
8.0	81.4	93.6	93.6	89.5	84.1
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16.0	81.4	93.6	92.7	87.3	80.6

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# BIRD'S EYE

**A fast telephoto staple stands out in Zeiss's new Milvus line**

**THE FIRST** of Zeiss's six new full-frame, manual-focus Milvus lenses to run the gauntlet of the *Popular Photography* Test Lab, this is actually the third 85mm f/1.4 in Zeiss's current catalog (and the fifth 85mm f/1.4 we've tested recently). The other two 85mm Zeiss lenses belong to its premier Otus line and to what the company now calls its Classic line of older lenses. Both the Otus and Milvus lines are improved to meet the imaging demands of high-resolution sensors and 6K video capture.

Like the other recent Zeiss lens families, the new Milvus optics are named for a genus of birds, in this case the raptors that we call kites. These are midsize birds of prey, and, aptly, the Milvus lenses fall midway between the Otus and Classic lines in optical can-do and pricing: the 85mm f/1.4 tested here costs \$1,799 (street).

This lens boasts a completely new internal design, but on the outside looks like most Zeiss lenses: It's sleek, massive in size, and beautiful, with an all-metal matte black body. Its reverse-mountable lens shade is lined with black flocking, and its manual focus collar turns smoothly and long for fine (if not fast) focusing.

The lens's large, crisp barrel markings include subject distance and depth-of-field scales, but that's about it. Neither the lens maker's name nor the focal length is displayed on the barrel proper. It's a beauty.

We'll compare this Milvus to Zeiss's Classic and Otus 85mms (tested in our April 2011 and November 2014 issues, respectively), as well as the 85mm f/1.4s from Nikon, Sigma, and Sony (all tested in April 2011), and Rokinon (September 2011).

Unsurprisingly our SQF tests found Excellent-range results for all six of these 85s. That said, Zeiss's premier Otus performed particularly well, even at maximum apertures, up to a 20x24-inch print size. This new Milvus came in second place, slightly sharper than the Nikon, Rokinon, Sigma, Sony, and Zeiss Classic lenses.

In our DxO Analyzer 5.3 tests of distortion, all three Zeiss lenses showed the same 0.02% Imperceptible-range distortion. With vignetting, the Milvus matched the Otus—gone at f/2.5—but Zeiss's Classic 85mm did slightly better: gone at f/2.

In close focusing, the Zeiss Otus and Milvus tested the same at 31 inches, far tighter than the Rokinon at 45.20 inches or the Classic 85mm at 39.75 inches. Nikon pulled down the highest maximum subject magnification at 1:5.87, slightly better than the Milvus's 1:7.34.

Other differences between the

## TEST RESULTS

**DISTORTION:** 0.02% (Imperceptible) pincushion  
**LIGHT FALLOFF:** Gone by f/2.5  
**CLOSE-FOCUSING DISTANCE:** 31.12 inches  
**MAXIMUM MAGNIFICATION RATIO:** 1: 7.34

## SPECIFICATIONS

**85MM** (82.92mm tested), f/1.4 (n.a. tested\*), 11 elements in 9 groups. Focus ring turns 270 degrees.  
**DIAGONAL VIEW ANGLE:** 29 degrees  
**WEIGHT:** 2.82 lbs **FILTER SIZE:** 77mm  
**MOUNTS:** Canon AF, Nikon AF  
**INCLUDED:** Lenshood  
**STREET PRICE:** \$1799  
**INFO:** zeiss.com

\*TESTED MEASUREMENTS NOT AVAILABLE DUE TO INSTRUMENT LIMITATION.



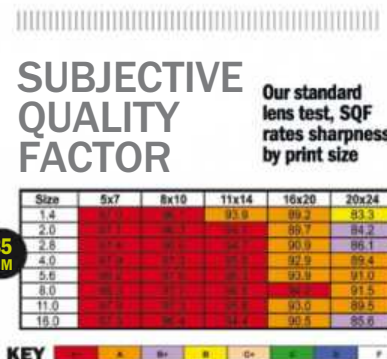
**What's Hot**  
 Sharp and nearly distortion-free

**What's Not**  
 It's expensive and heavy

**Who It's For**  
 Especially 4K and 6K videographers who want detail and accurate color

three Zeiss 85mms? We found that they were slight. The Milvus is a bit more modern looking and more ergonomically correct, plus it protects against dust and water spray—traits that the Classic 85mm lacks. Due to its more technically advanced and lighter focusing system, the Otus weighs about three ounces less than the Milvus. Prices jump down from the Otus at \$4,490 to the Milvus at \$1,799, all the way to the Classic 85mms \$1,083. Which is for you? Zeiss, more than any other lens maker, offers so many options that it is difficult to choose!

—Julia Silber





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## A Dog Has His Day

The wistful pup on our cover won Second Prize (\$1,000) in our famed international picture contest, which made *Popular Photography* unique among photo magazines. The photographer, Walter Chandoha, well known for his animal pictures, captured this Sydney silky terrier using a Graflex Super D 4x5 camera fitted with a 190mm Ektar f/5.6 lens. His exposure used a drop-curtain setting (in effect, open flash) at f/22. Four Ascor speedlights provided 1000 watt-seconds of lighting.

**60 YEARS AGO**

We gave tips on the wrong and right ways to shoot family portraits.



## Character Study

A dreamy group portrait, this documentary picture was part of a larger series shot in France by

Swiss photographer Otto Daettwyler. In doing his visual study of French Gypsies he traveled with them to record their way of life. For this photo, he used a Rolleicord IV with a 75mm Xenar f/3.5 lens; the exposure was 1/25 sec at f/4 on Ilford HP3 film.

## Impromptu Decision

This appealing picture was taken by photographer Daniel R. Rubin of Elmhurst, New York, during a break in a black-and-white photo session. Noticing the effect of natural light on his model, he quickly put a sheet of 8x10 color film into his camera. His quick thinking won him the \$2,000 First Prize for color. He used an 8x10 Eastman View camera with a 12-inch Ektar f/6.3 lens; the exposure on Kodak Ektachrome Daltight film was 4 sec at f/11.



## Living with Electricity

Photographer Harvey Shaman offered a complete, yet succinct, introduction to all things electrical. The photo was made by Shaman, who provided not only theory but also practical information on how to use these important electrical mechanisms.

—Harold Martin





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## LAB LENS TEST TAMRON 35MM & 45MM F/1.8 DI VC USD

CONTINUES FROM PAGE 84

f/2.5, the same as the Nikon, Sigma, and Zeiss. The Canon and Rokinon 35mm lenses, however, showed vignetting to f/5.6 and f/4, respectively. Macro range tests uncovered no noticeable vignetting.

The Tamron is the only high-speed 35mm we've tested that even comes close in subject magnification (1:2.31) to true macro (1:1); its nearest rival is the Canon at 1:3.88. It also wins the close-focusing race at 7.75 inches, beating the others by distances of between 1.43 and 5 inches.

Our tests of the 35mm's stabilization system showed a 2.66 stop gain in handheld shutter speeds in the normal focusing range, and a 1.25 stop improvement up close. That normal-range stabilization performance slightly outdid the only other stabilized 35mm, Canon's f/2, which delivered a 2.5 stop boost.

As for the 45mm, its competitive set includes the full-frame Canon 50mm f/1.8 STM and Nikon 50mm f/1.8G. While all three earned Excellent SQF scores, the Tamron lagged slightly behind the others. In our tests using DxO Anaylzer 5.3, the Tamron controlled barrel distortion (at 0.11%) considerably better than the Canon (0.20%) or Nikon (0.26%)—surprising because the Tamron 45mm is the wider lens and therefore should be more prone to distorting than 50mm glass. (The Nikon 50mm, for instance, dipped almost into

### How the Two Differ

In heft, operation, and general feel, Tamron's 45mm f/1.8 is almost a doppelganger for the 35mm. It takes the same size filters, is available in the same mounts, has the same advanced weather-sealing, and is priced the same. Notable differences, though, include the 45mm's lack of an XLD glass element, longer manual-focus turning radius, lower maximum subject magnification, and length (about 0.4 inch longer than the 35mm). Tests of sharpness, contrast, distortion control, subject magnification, and stabilizing ability showed near matches.

the Visible distortion range.)

As with the 35mm, the Tamron 45mm delivered the closest focusing of the group by as much as 5 inches. Not surprisingly, the maximum magnification for the Tamron at 1:3.16 was also much stronger than the Canon (1:4.32) or Nikon (1:5.76). While the Canon (\$125) and Nikon (\$220) cost significantly less the Tamron 45mm, neither is stabilized nor features Tamron's advanced weather sealing.

The \$599 street price for each of the Tamrons is more than fair, considering that the comparable f/1.4 Nikon, Sigma, and Zeiss sell for \$1,800, \$900, and \$1,843, respectively. (That fraction of a stop in maximum aperture is a negligible difference.) Canon's more upscale f/2 matches the Tamron in price, and the Rokinon (without AF or stabilization) goes for \$500. We are happy to see Tamron push beyond the zoom market and charge into the full-frame single-focal-length market. We're also excited to see what other premium primes it may have up its sleeve.

—Julia Silber

### TAMRON SP 45MM F/1.8 Di VC USD

## TEST RESULTS

**DISTORTION:** 0.11% (Slight) barrel

**LIGHT FALLOFF:** Gone by f/2.5

**CLOSE-FOCUSING**

**DISTANCE:** 11.12 inches

**MAXIMUM MAGNIFICATION**

**RATIO:** 1: 3.16

**IMAGE STABILIZATION:** 2.83 stops

## SPECIFICATIONS

**45MM** (45.94mm tested), f/1.8 (1.85 tested), 10 elements in 8 groups. Focus ring turns 190 degrees.

**DIAGONAL VIEW ANGLE:** 51 degrees

**WEIGHT:** 1.30 lbs

**FILTER SIZE:** 67mm

**MOUNTS:** Canon AF, Nikon AF, Sony AF

**INCLUDED:** Lenshood, SilkyPix Developer Studio 4.0 software

**STREET PRICE:** \$599

**INFO:** tamron-usa.com

## SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

Size	5x7	8x10	11x14	16x20	20x24
1.8	85.0	83.0	83.0	87.7	81.0
2.0	85.0	83.0	83.0	87.7	81.0
2.8	85.0	83.0	83.0	87.7	81.0
4.0	85.0	83.0	83.0	87.7	81.0
5.6	85.0	83.0	83.0	87.7	81.0
8.0	85.0	83.0	83.0	87.7	81.0
11.0	85.0	83.0	83.0	87.7	81.0
15.0	85.0	83.0	83.0	87.7	81.0

45MM

KEY



CHRISTAAN FELBER

# FREEZE FRAMES

## Challenging winter's fury

**WHEN CHRISTAAN FELBER** heard of the little-known practice of winter surfing, he was instantly intrigued. He ventured out in

the early morning to New York City's Rockaway Beach during a snowstorm in hopes of capturing athletes braving the weather. To his surprise, he found a handful of wetsuit-clad surfers already bobbing in the water when he

### **ABOUT THE PROJECT**

For shots in the surf, Felber used an underwater housing along with a very thick wetsuit.

arrived. Felber photographed the scene with an old Canon Rebel 35mm film SLR and Kodak Portra 400 film to perfectly capture the juxtaposition of a summer sport against the snowy sky above.

—As told to **Sara Cravatts**



Focal length: 45mm Exposure: F/2.8 1/320sec

# SP 35 mm & SP 45 mm



Introducing two new F/1.8 fast-aperture fixed focal length lenses with superior optical performance and unprecedented close-focusing capability integrated with VC (Vibration Compensation).

**TAMRON**

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If they wanted ordinary

they wouldn't have hired you.



Shot with the EOS 5D Mark III Camera & EF 70-200mm f/2.8L IS II USM Lens

It took courage and confidence for Roberto Valenzuela to convince his clients to step out into the rain on their wedding day. When you're taking wedding photography to the next level like Roberto is, you treat every obstacle as an opportunity to create something truly extraordinary — even a rainy wedding day. It's that attitude that's helped professionals take the art of wedding photography to new heights. Stay focused. Be Creative. Canon is with you every step of the way.

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